

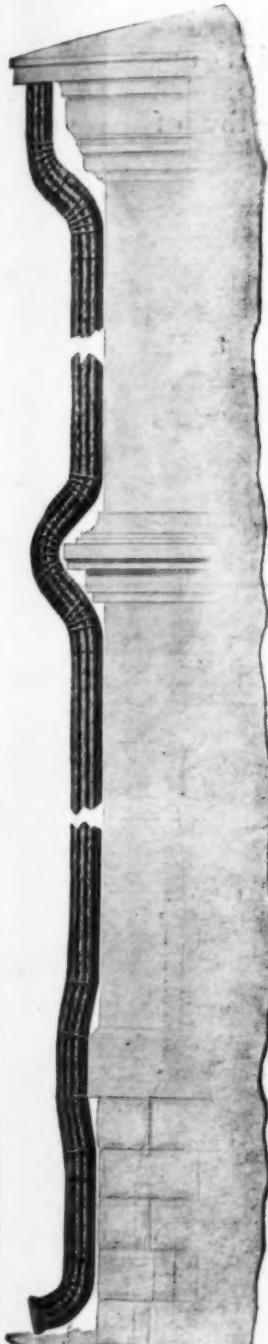
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AMERICAN ARTISAN and Hardware Record

Vol. 79. No. 21.

620 SOUTH MICHIGAN AVENUE, CHICAGO, MAY 22, 1920.

\$2.00 Per Year.



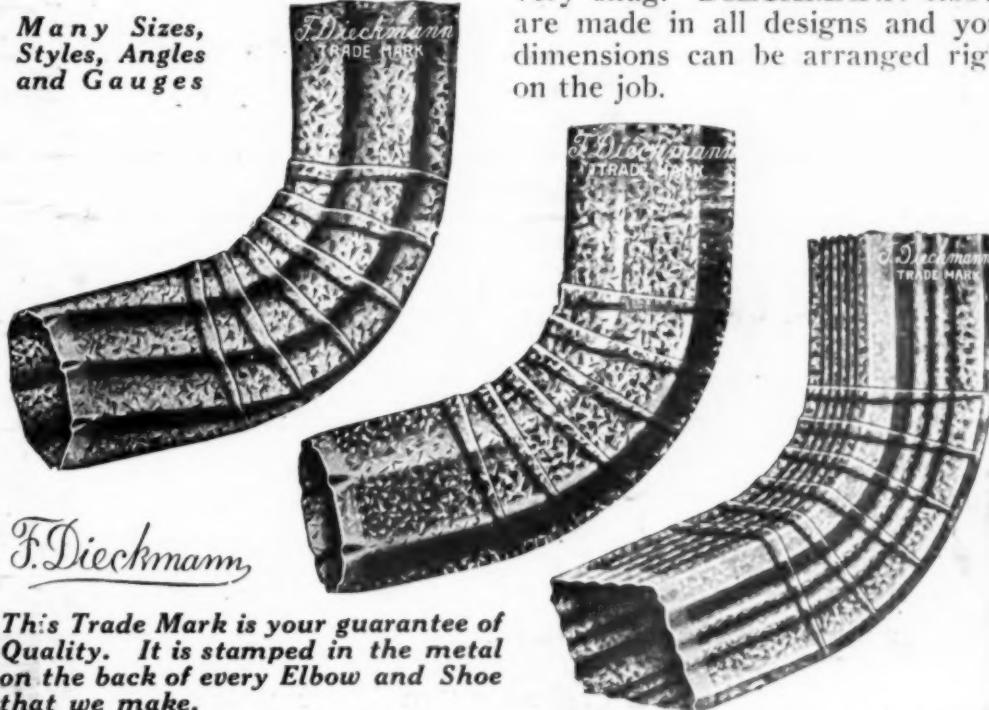
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shows elbows of all
angles from 10 to 90°

*Notice how each cluster of
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that we make.*

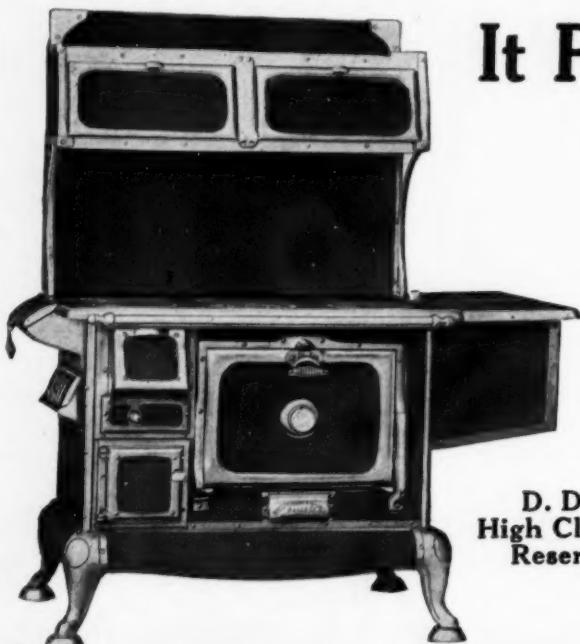
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CHICAGO, MAY 22, 1920.

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THERE IS A LAW of compensation which holds the universe together. Nothing is lost. Values are transformed but never destroyed. The more

Thanks for Sympathy. thoroughly we learn to perceive the compensations by which life's readjustments are effected the more keenly do we appreciate the power of human sympathy. It is not merely a power which exhausts its possibilities in words. It is sustaining and reconstructive. Only those who have need of it realize its full significance. There is no exaggeration in saying that AMERICAN ARTISAN AND HARDWARE RECORD, as a composite of human beings, is profoundly grateful for the messages and letters of sympathy which have come from all parts of the country in condolence, respect, and praise of Daniel Stern, Publisher and Proprietor, whose passing away has saddened us all. The numerous expressions of sympathy are a compensation and an inspiration to carry forward the great work which Daniel Stern originated and developed. The most sincere form which the gratitude of the staff of AMERICAN ARTISAN AND HARDWARE RECORD can take is to translate into action the letters and messages of sympathy by redoubled efforts to make this publication a worthy memorial to its founder.

STOCKS AND BONDS have been hard hit during the past few weeks. Even the Liberty Bonds of our Government have not been exempt from the hammering down of prices. **Uncle Sam Backs You.** Indeed, so unfavorable has been the effect of this state of affairs upon the public that the Treasury Department deems it necessary to send out a statement for the purpose of restoring confidence. It says to the millions of investors in the securities of our country:

The United States Government borrowed money from you to finance the war. You hold the Government's promise to pay you back. This promise is called a Liberty Bond or Victory Note. On this bond are stated the conditions under which the Government borrowed the money from you.

For instance: If you hold a bond of the Third Liberty Loan, it states that on April 15th and October 15th of each year until maturity, you will receive interest on the amount you paid for the bond. Other issues bear other rates of interest and other maturity dates, all of which are clearly stated on the bond.

Now, if you keep your bond until the date when the Government pays you in full for it, you do not

need to worry if, in the meantime, the price is low one day or high the next. You and Uncle Sam are living up to your agreement with each other, and neither will lose by it.

On the other hand, if you sell your Liberty Bond now, you will find that the man you sell it to will not give you a dollar for every dollar you paid for it. The price has been brought down because so many people are offering to sell their bonds. If the market is flooded with tomatoes, you can buy them cheap, but if everyone is clamoring for tomatoes and there are few to be had, the price goes up. The same is true of Liberty Bonds. Short-sighted people are dumping them on the market, and wise ones are buying them.

The best advice that can be given to the owner of a Liberty Bond is this: Hold the bond you bought during the war. It is as safe and sound as the United States Government itself.

Buy as many more at the present low rate as you can afford. If you hold them to maturity, you are bound to make the difference between what they sell at now and their face value. You will also receive good interest on your investment. Hold on to your Liberty Bonds and buy more.

A SLOWING DOWN of purchases is reported by Dun's Review in its summary of the chief events and tendencies in the commercial world. Less-

Slowing Down of Buying. Lessening of demands from one cause or another is being more clearly reflected in a movement toward price deflation.

While May 1 brought a new high price level, as measured by Dun's Index Number, subsequent market tendencies have plainly suggested a lessening of the long continued buoyancy of some important commodities, and progressive weakening of prices has developed in certain wholesale channels. The recent change of conditions, which is also manifesting itself in retail offerings of goods at price reductions, has partly resulted from weather and labor conditions, but is more largely the outcome of consumers' disinclination or inability indefinitely to meet the extreme prices, and to the growing practice of economy and retrenchment.

Purchasing of the more expensive classes of merchandise, if still bulking heavy in the aggregate, is not of the previous magnitude, the lower cost articles now finding more popular favor, and the policy of many dealers is one of caution in anticipating future requirements. The contraction of forward operations is, in fact, one of the outstanding features of the pres-

ent situation, advance ordering for fall being appreciably restricted in some leading lines, and cancellations or revisions of contracts are not of infrequent occurrence. Reflecting these phases, curtailment of production has been forced in some directions, while idleness at other manufacturing establishments through lack of essential materials, due to delays in transportation, is likewise an influence in lowering the public buying power.

SALES TAXATION AS a remedy for the prevailing revenue troubles is gaining favor in many quarters.

A strong line of arguments in its sup-

Sales Tax Is Remedy. port was presented by George H. Graham, a New York business man, in a recent address before the National Association of Paper Box Manufacturers in Cleveland, Ohio. He said that opposition to the excess profit tax had been crystallizing for several months in commercial and financial circles. He declared that hundreds of letters had been received from manufacturers, farmers, bankers and merchants, favoring the sales tax idea, as a solution of National problems of taxation.

"The most readily determined factor in the failure of the present system," continued Mr. Graham, "is that it bases the collection of government revenue on something intangible—that is on profits and income. In the history of all corporations there are lean years and good years.

"In the recent report of United States Steel Corporation, for instance, it is shown that in 1919 the corporation paid \$52,000,000 in Federal tax, as compared with \$274,000,000 in 1916, a shrinkage of \$222,000,000 in a single year! What is true of this corporation is also true in the long run, although perhaps in a lesser degree, of all corporations.

"Again, because of the very heavy surtaxes imposed upon him, the individual is seeking investment in non-taxable securities. This withdraws the investment of the capital of the country from productive enterprise, prevents its expansion of existing industries and the starting new ones; and tends, in an increasing measure, to the contraction of capital already invested. It leads to indefinite stabilization or stagnation of all industries.

"This country is hard pressed just now for housing accommodations. As the lumber industry is a primary factor in this situation, let us see how the present tax measure affects it.

"Take the case of the man who seven or eight years ago bought a piece of timber land valued at \$100,000, put a mortgage of \$50,000 on it and paid on it a like sum—his entire capital. This timber, if cut, would bring \$500,000, but if he does cut it he must pay to the Government in taxes more than half this amount, which is his increased capital. If he does not cut it he is not only tax free, but worth half a million dollars. No wonder we have a shortage of building materials!

"One of our senators," continued Mr. Graham, "recently said that 'we have too much government in business and not enough business in government.' So I desire to suggest a plan which certainly has the merit

of being simple and easily understood by all. This is the so-called sales tax or the tax on turnover. While income and profits do vary, the physical activities of the week are reflected in buying and selling. Consequently in taxing sales you are doing so on something more substantial than income and profits, and at the same time lifting the burden which is stifling competition and progress and causing the wasteful flow of capital into tax exempt securities. The cost of living would then come down, the value of the dollar increase and the farmer's profits and the mechanic's wage mean more in purchasing power, for wages can not fall in the same ratio as the cost of manufacture."

From the most careful calculations it is safe to state that such a tax would produce something more than \$2,000,000,000. It would give enough to take the place of the present excess profit tax, cut down the present surtaxes, and eliminating certain portions upon earned income which have been figured, would produce \$1,250,000,000. This, with the following avenues of revenue, that is, income from customs, which is growing with the increase of importations; and a normal tax of 4 per cent on all incomes of whatever character above present exemptions; and surtaxes upon unearned incomes would bring the necessary return and have a sounder basis than that which we have before us at present.

MUCH OF OUR present industrial difficulties is due to lack of education in the primary principles of economics. Hence, there is a **timeliness** in the contention of Dr. E. L. Bogart, **Needed in Assistant Foreign Trade Adviser, State Economics.** Department, Washington, D. C., that economics should be more widely taught in the high schools of this country, so that all elements in our population would be fitted to grasp such problems as those affecting our foreign trade.

We are often reproached for the sordidness of our interests and are called material minded, but the truth is that no greater challenge was ever given to the human intellect and soul than is presented by the social and economic problems of today.

The United States has always been the testing ground for new social and economic experiments, says Dr. Bogart. Our people have constantly to pass judgment upon these questions and to form opinions as to their reasonableness. Moreover, since our Government is democratic, more questions are referred for decision at the polls than in any other country, and most of these questions are either directly economic or involve economic considerations.

And finally, as a worker earning and spending his income the citizen is called upon daily to make decisions which are economic in character. It seems clear that if he is to meet his obligations intelligently the average citizen should possess a knowledge of economic principles, should have his powers of observation and discrimination trained and be able to apply his knowledge to the problems presented to him.

Accurate statistics are lacking which would show the proportion of high schools in the United States giving instruction in economics, but the number has certainly been growing. In 1893 about one-twentieth

of the high schools replying to a circular reported courses in economics; in 1912 the proportion given in a limited inquiry was about one-fifth; today the proportion is certainly not less and may be greater. The number grows moreover as one travels from East to West; in California about two-fifths of the high schools are reported to be giving work in economics.

Many of the economic misconceptions now so prevalent would be cleared up by even an elementary training in economics.

Among these may be cited the "lump of labor" theory that there is just so much work to be done and that if some men work overtime or produce too much there is so much less employment for other men; or the idea that extravagant expenditure is a good thing because it gives employment to labor and puts money in circulation; or the notion that trade which is advantageous to a foreign nation must be regarded with suspicion by us; or that we can under present conditions expand our exports indefinitely without increasing our imports.

RANDOM NOTES AND SKETCHES.

By Sidney Arnold.

There is one word which we can ill afford to lose from our daily speech. That word is "earn." It is a sturdy word and holds a world of meaning. One seldom, if ever, hears it these days. Servants are "getting" fifteen dollars a week; bricklayers are "paid" a dollar an hour, and practically everybody is "making" big money. But nothing is said about anybody "earning" anything. Is the lost word significant, or has the verb "to earn" merely gone out of style? Or, again, has a conscience-stricken nation dropped the word in subconscious recognition of a fact?

* * *

Social and economic values have undergone startling changes since the signing of the Armistice and the introduction of the amateur overall clubs, says my friend, Julius Gerock, Jr., of Gerock Brothers Manufacturing Company, St. Louis, Missouri. He illustrates the statement with this highly probable tale:

A harassed college professor, in order to make ends meet, decided to take up manual labor. So he visited a large building operation, and said nervously to a red-faced man with a diamond horseshoe in his necktie:

"I am—ahem—an ex-college professor, and I would like to know if you could take me on here as a bricklayer."

The red-faced man gave a derisive snort.

"Bricklayer? I think not!" he said. "We might start you as an architect, though, and let you work your way up!"

* * *

There is no substitute for genuineness, says my friend Irving S. Kemp of Vaughan and Bushnell Manufacturing Company, Chicago, Illinois. Pretense and false "front" are sooner or later exposed. In the long run it does not pay to use subterfuge of any sort. He cites the story told him by an old lawyers regarding the beginning of his professional life:

"I just had installed myself in my office," said the lawyer, "had to put in a phone and had preened myself for the first client who might come along when through the glass of my door I saw a shadow. Yes, it was doubtless some one to see me.

"Picture me, then, grabbing the nice shiny receiver of my new phone and plunging into an imaginary conversation. It ran something like this:

"'Yes, Mr. S.,' I was saying as the stranger entered the office, 'I'll attend to that corporation matter for you. Mr. J. had me on the phone this morning and wanted me to settle a damage suit, but I had to put him off as I was too busy with other cases. But I'll manage to sandwich your case in between the others somehow. Yes. Yes. All right, good-by.'

"Being sure, then, that I had duly impressed my prospective client, I hung up the receiver and turned to him.

"'Excuse me sir,' the man said, 'but I'm from the telephone company. I've come to connect your instrument.'"

* * *

Here is a bit of brief dialogue which was sent me by my friend, George Harms of F. Meyer and Brother Company, Peoria, Illinois. It hits the nail on the head.

Employer—"There's a spirit of unrest among my men."

Visitor—"What about?"

Employer—"Because they can not find any excuse to go out on a strike."

* * *

You don't have any trouble in your business, do you? What? You do? Well—so do I and so does every one who does any business.

But suppose you do have trouble, what do you do about it? Carry a chip around on your shoulder all the rest of the day? You don't? Well say, Brother, you are an exception. Oh, you found out it didn't pay, did you? Found that he who looketh for trouble, the same unto him shall be given. Well, that is just about the size of it, and aside from that, one chip on the shoulder is a signal for a whole lot more to appear.

* * *

One of the most perplexing mysteries of human nature is the peculiar twist of mind by which men believe that they ought to hold up their end in spending money. In the days of the Great Thirst this twist of mind found its most common expression in buying rounds of drinks. Today it has assumed a more subtle form in emulation of extravagance. The idea is phrased in a folksy way in the following lines:

The Flourish of Foolish Pride.

"I've noticed," said Abe Wilkins once,
"That men are often proud.
They like to make a flourish when
They're minglin' with the crowd.
And many a young man blows the coin
He can't afford to spend,
Because he has the notion he
Must always hold his end.

"I like a man to do his share
In everything that goes,
An' I despise a mean man's tricks,
As everybody knows.
But I have seen a lot of woes
An' misery depend
Entirely on this foolish plan
Of holdin' up an end.

UP TO THE MINUTE NEWS SIFTINGS

STOVE MANUFACTURERS' CONVENTION ADVOCATES STANDARDIZATION.

The fact that men have advanced far enough to take collective action in matters pertaining to an industry is an indication of moral as well as economic development. It signifies the doing away with many injustices and the lessening of opportunities for sharp practices. Such a group of men must necessarily have a broad conception of their relationship to the general public. They have arrived at a stage



Lee W. Van Cleave, Re-elected President National Association of Stove Manufacturers.

of development in which there is clear realization of duty as well as privilege. They have learned the basic soundness of the truth that he profits most who serves best. Unless an organization is held together by the force of such purpose it can not thrive and continue to exist. The National Association of Stove Manufacturers has just concluded its Forty-Ninth Annual Convention, which took place May 12 and 13, 1920, in Copley-Plaza Hotel, Boston, Massachusetts. It has grown stronger year by year for the plain reason that it has continued true to the ideals of service to its members and to the people. It would be idle to deny that individual stove manufacturers working independently of one another could not have achieved the improvements of the industry which have been brought about through the cooperative thought and effort of almost half a century of organization. The difficulties, economic and social, which confront the stove manufacturers at this time are too grave for individual solution.

They can be solved only by the closest working together of the best brains of the industry. The necessity for reducing costs of production is apparent to all. The retailer and the consumer benefit from such reduction as well as manufacturers. Standardization of parts and lessening of the number of units are practical means of bringing about this desired end. The convention of the National Association of Stove Manufacturers recognized this as a powerful factor and expression was given to it in the annual address of the President of the Association, Lee W. Van Cleave, the full text of which is as follows:

**Annual Address of President Lee W. Van Cleave to the
Convention of the National Association of Stove
Manufacturers, Held in Copley Plaza Hotel,
Boston, Massachusetts, May 12, 1920.**

It is my very great pleasure as President of this Association to extend to you my personal greetings. This is the 49th Annual Convention of this Association and I believe that the past year has been the most prosperous in the history of the stove business. Our factories are scattered all over this wonderful country from the Atlantic to the Pacific Oceans and from the Great Lakes to the Gulf of Mexico and it is my understanding that in all of these sections business has been placed very freely and that practically every manufacturer has on hand orders at this time enough to keep him busy for some months to come.

It also appears that the balance of the year will be most prosperous inasmuch as every factory will have all the business that it can produce and ship.

The prices which we are getting today for our goods should bring us all a fair percentage of profit and put our industry in better shape than it has been for many, many years.

It was not my intention to intimate in the preceding paragraph that we are all worshipping the almighty dollar, but profit is that which we are in business for and the innate American characteristic is to do and to do better than others that which we have undertaken.

Organization Exists for the Common Good.

This Association has in its membership 112 of the leading stove manufacturers of the country and is entirely representative of our industry. Our Association exists for the common good of its membership and to promote harmony and good will among you all. The work which our Association has done in the past and which we all hope it will do in the future is very worthy of our consideration.

The unification of terms has been one great accomplishment which has been worked out in the various local districts, and it is my understanding that at the present time uniform terms are in effect in all sections of the country.

Facing Many Serious Difficulties.

We, as members of the National Association of Stove Manufacturers, are confronted with many very serious difficulties for the balance of this year. The railroads have been turned back to their former owners and the readjustment period which they will have to go through is bound to work a very great hardship on the shippers of the nation. Many mills and furnaces throughout the land are having the most serious difficulty getting enough cars in which to ship their products. I understand that in the South many of the Pig Iron Furnaces have thousands of tons of Pig Iron stacked in their yards and are unable to obtain cars enough to forward it to the users. The same condition prevails in the steel mills. Finished products are piled up to the value of many thousands of dollars, all of which should be in the hands of the manufacturers, but they are unable to ship it owing to a shortage of cars. This readjustment period is going to work a great hardship on the nation and it will have its effect in our own membership—delaying shipments, raising our costs by reason of having to purchase from local stocks and from various other causes. It would seem absolutely necessary that freight rates be readjusted in order to give the railroads a chance to earn an adequate return on money invested. This again will enter into the cost of our goods and help to maintain, if not to advance, present prices.

Financial Conditions.

There has been a marked change in the money market the past few weeks so far as interest rates are concerned. The banks will make loans only to their regular customers on a 6½ to 7 per cent basis, and commercial paper is selling on a basis of 7½ per cent and better.

The Bankers in many sections of the country are continuing to warn their customers with reference to being conservative in their business plans for the year, but they are apparently willing to make loans for legitimate business as in the past.

Transportation in Critical Condition.

A very critical situation is facing the country with reference to the railroads. They need billions of dollars for improvement and new equipment and the financial powers must in some way devise a plan for taking care of this need for enormous sums of money. If the country at large is to prosper, the railroads must first be prosperous and have sufficient equipment to take care of the trade in all sections.

The wage advances made during the past year have been unprecedented in the lives of most of us in this room. Our employees ask for and get a 20 per cent advance in wages. Ordinarily a 5 per cent would be considered about right, but we feel probably that if we do not grant this 20 per cent the men will be dissatisfied, that they will seek other employment, that we cannot carry on our industry and, therefore, we grant the increase. This is all very well, but later on, when we again come down to earth, it will be a different story. These adjustments will have to be made on a downward scale and it will be very hard, indeed to bring this about in proportion to the drop in prices which will surely take place in the years to come.

It has been my pleasure during the past twelve months to have visited the New England Association of Stove Manufacturers who held their meetings in Boston last June. I have attended two meetings of the Southern Association of Stove Manufacturers and all of the meetings of the Western Association and I desire to express my thanks at this time to the members of those various Associations for the hearty welcome extended to me during my visit.

International Trade Conference.

In October of last year, I had the pleasure of attending, as a representative of this Association, the International Trade Conference held in Atlantic City under the auspices of the Chamber of Commerce of the United States. This was a most interesting meeting and gave every one who attended it a very different view of the financial situation of our country with reference to the finances of Europe.

It brought to the attention of the meeting the very gravest situation with reference to our responsibility for rehabilitating European finances. I will not attempt to go into the details of this meeting, but simply desire to say that it was productive of very great good in bringing a closer relationship between all of the nations represented from a financial viewpoint.

Mr. James A. Lansing, the National Councillor, will, in all probability, give you a more adequate report of this meeting as he also attended same.

I will not attempt to touch very much on the activities of the Association during the past year as the Secretary's report will cover practically all of these items.

Praises Work of Secretary Wood.

I desire, however, to comment on the fact that Secretary Wood has put in a very great amount of effort and work to prepare for our membership the Cost Formula for Enameling Departments. A crying need has existed throughout the year for members running Enameling Departments for an adequate cost system in order that they might know the cost of their enameling. Secretary Wood has visited practically all of the Enameling Plants of the Country and has prepared for you a very comprehensive report on this subject. He will present it to you at the proper time.

The matters of the finances of our Association will be covered fully in the Treasurer's report and I will, therefore, not make any further reference to this.

Never in the history of the stove business have cost conditions changed so rapidly as during the past twelve months. It has been impossible for us to know from one month to another what the cost of our goods has been, and I desire to make mention at this time of the great value of the uniform cost system which is in use by so many of our members.

If it were not for the cost system which we are all using, there would be many grievous errors made in the pricing and costing of goods and I cannot emphasize too strongly the great need that every member of this Association adopt the cost system which is laid out by our Association.

A very beneficial change has come into our industry during the period since the ending of the war, and since we have had such unprecedented demand for our goods, namely, that we have been able to get our shipments out of the factory much earlier in the year than we have previously. This saves the congestion in our warehouses, saves the cost of taking stoves to and from the warehouse and also allows us to ship very largely during the first six months those goods

which ordinarily would congest our shipping in the late summer and early fall months when everybody wants their goods. Shipping large quantities of goods in a few months increases the cost of getting them out to a very large extent, so that I sincerely hope that we will not lose the benefit that we have obtained by this experience, that we will continue to urge early shipments, and if necessary, make the proper inducement so that this system can be maintained. It would save many of us from building new warehouses and other expenses in addition.

During the past year, God has seen fit to take into his fold a large number of our members whose names are as follows:

Major Chester I. Warren, William P. Roberts, John O. Lamb, Joseph Hardwick Caldwell, George E. Wilbur, James S. Allison, Jeremiah Dwyer.

Committees have been named to draft suitable resolutions which will be a part of our records and copies of them will be sent to the family.

General Business Conditions.

In almost every section of the country, trade conditions apparently continue satisfactory. There seems to be no slackening in the volume of retail distribution, and although we occasionally hear a note of warning with reference to higher prices, goods continue to move and stocks are replenished. In most sections, the manufacturers have all the business which they desire and can handle in sight. The iron and



Robert M. Leach, Re-elected First Vice-President National Association of Stove Manufacturers.

steel industry, in which we are especially interested, is operating to the fullest capacity under present labor and industrial conditions. They all apparently have plenty of business in sight for a long time, but there is less talk about additional advances of prices at this time than there has been in the past. The anxiety as expressed by financial experts with reference to tight money has been allayed temporarily, at least, by the recovery of sterling and the receipt of gold importation. However, the situation has not entirely cleared up and still has some disquieting elements.

The increase in costs in all lines is one of the causes for such anxiety. The prospective advances in railroad rates and coal mining, affect all lines of industry and the feeling of disquietude in many industries is very apparent, especially with reference to the labor situation.

The building program should continue unabated, but even in this line, the labor is an important factor and may retard construction if all parties are not kept in a conciliatory mood.

Development of Iron and Steel Industry.

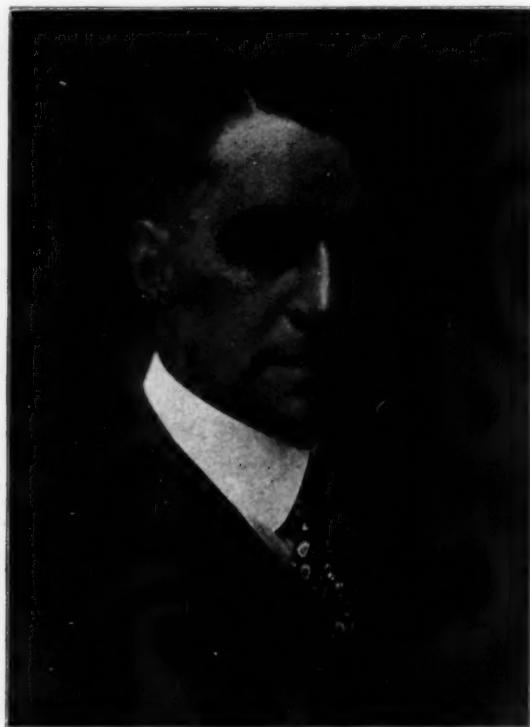
A few statistics with reference to the production of pig iron and steel may be of interest. There was produced in the year 1860 in the United States 821,223 tons of pig iron; in 1890, there was produced 9,202,703 tons; in 1918, there was produced 39,000,000 tons of pig iron of all grades. In the year 1880, the total production of steel in the United States was 1,200,000 tons whereas in 1910 there was produced 26,000,000 tons, and during the year 1919, there was produced approximately 50,000,000 tons, so that you can appreciate the very large growth of the pig iron and steel producing indus-

tries, and this, of course, is commensurate with the consumption of these commodities.

It has been possible to make such enormous increases due to the improved facilities for handling material of this kind. Improved machinery for handling the heavy ore where it is handled in carload lots instead of wheelbarrows has made it possible to accomplish such Herculean tasks.

I have felt for a great many years that the stove manufacturers of this country were missing one of the greatest opportunities ever presented to an industry by not standardizing their products down to a few styles and sizes and then running to capacity on these few articles. Those of us who make a full line of stoves and ranges naturally have a very large shop overhead, due to the great amount of handling necessary in order to take in and out of the foundry the numerous patterns which are running, whereas the stove house making a specialty eliminates thousands of dollars of this kind of labor, and can, therefore, sell their products much cheaper and make a more adequate profit than those who have lost sight of the fact that quantity production of a single article lessens the cost, improves its quality and requires less capital invested for a fixed amount of business.

These things I have dwelt upon very strongly in the last few years in the company which I represent, the war regulations with reference to reducing the number of units helping us very materially to bring about something along these lines. We have not put back in our line anywhere near the number of units which we were manufacturing in the pre-war period



B. E. McCarthy, Re-elected Second Vice-President National Association of Stove Manufacturers.

and it will be a special order of business in our company to keep down the number of units manufactured to the very minimum.

The average stove manufacturer is prone to get along in the old time way of producing his castings and making his stoves the way they were produced many years ago. There have been very limited improvements in foundry practice in the stove industry in the last twenty years, and in the writer's humble opinion, it is due very largely to the facts above presented, that we have not been wise enough to standardize our products to a few units and then push those units to the limit.

Strongly Advises Standardization.

I think that the best suggestion that I can make to you as stove manufacturers today is, to standardize your parts and reduce the number of units in your line.

A subject has been brought to my attention which I feel is of enough importance to present it at this time for your consideration, that is, with reference to the reproductive value of the physical assets of our manufacturing plants. If we were to make contracts today for reproducing our plants machinery, patterns and all articles of that kind, we would find that the present cost of the same would be considerably in excess of 100 per cent over the value in 1914.

This question arose with reference to taking out increased insurance on physical assets, and after doing considerable figuring, it became apparent that if we did not increase our 1914 valuation over 100 per cent, we would not be fully covered from an insurance standpoint.

I, therefore, deem it advisable for those of our members who have not already done so to take the above into consideration and revalue their plant on the basis of present reproductive value for insurance purposes and then take out enough insurance to cover on that basis.

Production Conditions.

In producing merchandise today under the conditions with which we are surrounded, we must realize that the exceptional and unnecessary costs which enter into our products must be taken care of in our prices. During the past four months, it has been almost impossible to get gas cocks for the manufacture of gas ranges, necessitating the setting back on the floors of hundreds of gas stoves waiting for these small parts. Wire products have been short in all lines, particularly oven racks for cooking stoves and gas stoves, necessitating making various kinds of racks of cast iron and steel in order to get by.

The coal and coke situation has been a nightmare to many and we have had to buy these commodities at increases over our contract prices. Steel has had to be bought from jobbers, paying a very high premium for it and getting most any size available and thereby standing a loss from the wastage in using these odd sizes. In some cases, heavier gauges of steel than were required have been used, and in other cases, a lighter gauge, simply to get stoves to the customers.

The wages of foremen, superintendents and shop managers have had to be raised in like proportion to the raise given the workmen. All of this has very largely increased the overhead expense in all departments.

The production per man is growing less and less each day and this again very largely increases the cost.

Transportation difficulties are of many kinds. Incoming raw material has been delayed for weeks, thus slowing up production. There are so many unforeseen things coming up day by day that the life of the manufacturer today is not a happy one. The only compensating feature is that we all have plenty of business to keep us from worrying too much about our troubles.

President Van Cleave's annual address was followed by reports of Treasurer Walter M. Jones and Secretary Robert S. Wood. Then came the reports of the Transportation and Classification Committee, John J. Fisher, Chairman; Committee on Design Registration, George H. Barbour, Chairman; Committee on National Chamber of Commerce, James A. Lansing, National Councillor and Chairman Tariff Committee; Executive Committee, W. G. Henry, Chairman; and Foreign Trades Committee, William J. Myers, Chairman.

The afternoon session of the first day of the Convention began at 2:00 o'clock Wednesday, May 12, 1920, with an address on "Practical Cost-finding for the Stove Industry," by Robert S. Denham, Chief Engineer of the Denham Costfinding Company, Cleveland, Ohio.

He was followed by Charles C. Parlin, Manager Division of Commercial Research of the Curtis Publishing Company, Philadelphia, Pennsylvania, who had for his topic "Basic Facts of Prosperity in 1920."

Mr. Parlin placed strong emphasis upon the farm market as the greatest of all domestic markets, saying that "approximately one-third of the population lives on the farm, and if to this is added the number living in the cities and villages of less than five thousand population, the total becomes considerably more than half the population of the United States."

"The past three years have been years of unprecedented earnings on the farms. Starting from a base of about \$1,500,000,000 in 1879, the value of gross farm output increased steadily until 1914, and then in three years jumped more than 100 per cent, reaching a total gross income of approximately sixteen billion dollars in 1917, and rising to still higher levels in 1918 and 1919. Total gross value of the census classification, or wealth produced annually, is

the combined valuation of crops and of animal products, but these figures include duplication, as hay and other crops are in part fed to animals included in the estimate. The figures in the text are believed to be conservative estimates of gross farm output, exclusive of duplication. In other words, in each of the past three years the gross earnings of the farms of the United States were more than double the amount of any year before the war.

"Farming is not only the largest industry, it is the basic one, and in the past three years this industry has risen to a new plane of earning and spending power.

"The many influences that are increasing the earning power of the farm are doing another thing quite as important—they are cultivating the taste of the farmer for better merchandise.

"The automobile has transformed farm life. It has broadened the farmer's acquaintance from a radius of seven miles to a radius of thirty miles. It has made the farmer and his family a part of the civic and social life of the nearby city and, what is also important, it has made it easy for city residents to visit their friends on the farm.

"Education is also a transforming influence on the farm. The sons and daughters are going to city schools and colleges more than ever before. Education is increasing the efficiency of farming and raising the standard of living so that a larger proportion of farm homes have thoroughly modern equipment and conveniences.

"The relation between education and home improvements is illustrated by a study of 825 farm homes made by the Agricultural College of the University of Wisconsin. The proportion having home improvements steadily increases with education. Where the parents had taken a short course in agriculture have or have had a high-school education, a larger number insisted on home improvements. But the proportion rises far more rapidly among those who have had a college education.

"Not only is the buying power of the farm family steadily increasing and the standard of living rising, but the farm family is now more accessible than ever before. More and more the trade of farm families is concentrating in the county seat cities and in cities which are local trading centers. In all agricultural sections dealers generally report that their trade from the farms and villages covers a radius at least twice as large as a few years ago. Hence, the manufacturer who has national distribution that adequately reaches the smaller cities is already reaching the farm market in all the more expensive or shopping lines. Also he is increasingly reaching the farm trade in less expensive lines, for when the family goes to the trading center to shop they naturally buy more or less of the cheaper articles. However, the village store does and is likely to continue to do a large volume of business in convenience lines, such as groceries, toilet preparations, notions, overalls and other work clothes, and staple lines of hardware. Hence, an adequate distribution of these convenience lines necessitates jobber cooperation, involving at

most simply an extension rather than a change in selling methods.

"In the last analysis, the consumer is King—the whim of the consumer makes success or failure. Whoever wins his confidence has won the game, and whoever loses it has lost, indeed."

Thursday, May 13, 1920.

The subject for discussion in the opening address of Thursday morning's session, which began at 10:00 o'clock, was "Will the Extensive Sale of Enamored Ranges Benefit the Stove Industry?" by Jones T. Templeton, Vice-President of the Buck's Stove and Range Company, St. Louis, Missouri. The remainder of the session was devoted to routine matters and the convention adjourned with the election of officers. The following members were chosen to con-



Robert S. Wood, Re-elected Secretary National Association of Stove Manufacturers.

duct the affairs of the National Association of Stove Manufacturers for the ensuing term:

President: LEE W. VAN CLEAVE, The Buck's Stove and Range Company, St. Louis, Missouri;

First Vice-President: ROBERT M. LEACH, Weir Stove Company, Taunton, Massachusetts;

Second Vice-President: B. E. McCARTHY, Phillips and Buttorff Manufacturing Company, Nashville, Tennessee;

Treasurer: WALTER M. JONES, Richmond Stove Company, Richmond, Virginia;

Secretary: R. S. WOOD, 508 National State Bank Building, Troy, New York.

Executive Committee.

L. H. BOOCH, Chairman, Bridge and Beach Manufacturing Company, St. Louis, Missouri;

JOSEPH L. ANTHONY, Weir Stove Company, Taunton, Massachusetts;

HENRY J. KARGES, Indiana Stove Works, Evansville, Indiana;

ROBERT A. PATTON, Abram Cox Stove Company, Philadelphia, Pennsylvania;

WILLIAM HENRY WARREN, Fuller and Warren Company, Troy, New York;

FRANCIS PALMS, Michigan Stove Company, Detroit, Michigan;

E. T. HARRISON, Southern Stove Works, Incorporated, Richmond, Virginia.

The many serious difficulties which the stove industry must encounter during the transition period from present to more nearly normal conditions serve to enhance the value of the National Association of Stove Manufacturers and to knit its members together in stronger bonds of fellowship. The convention was a success from every point of view and the members felt themselves amply repaid for the time spent at its sessions.

STOVE FOUNDERS' NATIONAL DEFENSE ASSOCIATION HOLDS ITS 35TH ANNUAL CONVENTION.

So long as people persist in making distinctions between employers and employees, so long as they continue the habit of mind by which citizens of our country are divided off into classes, there will be no way out of the tangle of misunderstanding and conflict which constitutes the relations between labor and capital. It is primarily a matter of psychology rather than of economics. The indispensable need of our time is oneness of national consciousness. We must cease to think of ourselves as units of separate and independent groups. We must acquire a sense of our common interests as human beings and citizens of a



George Mitchell, Re-elected President, Stove Founders' National Defense Association.

great, free republic. Conflict comes from division. Harmony comes from unity. The Stove Founders' National Defense Association was organized thirty-five years ago for the protection of the interests of the stove industry. The members of the Association came gradually to perceive that defense implied possibility of attack. They set themselves to work to do away with the causes of possible attack, and instituted

conference agreements between the Stove Founders' National Defense Association and the International Molders' Union of North America. The first conference was held in 1891. Its first resolution, which has often been reproduced in these columns is worth repeating for its moral value today, as follows:

"Whereas there has heretofore existed a sentiment that the members of the Stove Founders' National



Robert W. Sloan, Re-elected Secretary, Stove Founders' National Defense Association.

Defense Association and the members of the International Molders' Union of North America were necessarily enemies, and in consequence a mutual dislike and distrust of one another and of their respective organizations have arisen, provoking and stimulating strife and ill-will, resulting in severe pecuniary losses to both parties; now, this conference is held for the purpose of cultivating a more intimate knowledge of each other, and of their methods, aims, and objects, believing that thereby friendly regard and respect may be engendered, and such agreements reached as will dispel all inimical sentiments, prevent further strife, and promote the material and moral interests of all parties concerned.

"Resolved that this meeting adopt the principle of arbitration in the settlement of any dispute between the members of the International Molders' Union of North America and the members of the Stove Founders' National Defense Association.

"That a conference committee be formed, consisting of twelve members, six of them shall be iron molders appointed by the International Molders' Union of North America, and six members appointed by the Stove Founders' National Defense Association, all to hold office from January 1 to December 31 of each year.

"Whenever there is a dispute between a member of the Stove Founders' National Defense Association and the molders in his employ (when a majority of latter are members of the International Molders' Union), and it can not be settled amicably between them, it shall be referred to the Presidents of the two

associations before named, who shall themselves or by delegates give it due consideration. If they can not decide it satisfactorily to themselves, they may, by mutual agreements, summon the Conference Committee, to whom the dispute shall be referred and whose decision by a majority vote shall be final and binding upon each party for the term of twelve months."



William A. Dwyer, Re-elected Treasurer, Stove Founders' National Defense Association.

That the spirit of this brotherly tolerance and good-will has born fruit is amply evidence by the continuance of peace in the industry for so many years. Hence, the members of the Stove Founders' National Defense Association gathered for their Thirty-fifth Annual Convention in the Copley-Plaza Hotel, Boston, Massachusetts, May 12 and 13, 1920, approached the problems of their industry with the power of peace rather than of strike and lockout. It was brought out during the deliberation that the effect of the years of agreement through conference has been satisfactory alike to the stove founders and to the molders.

An example of the good-will which has thus been established is presented in the temporary modification of the agreement with the Stove Founders' National Defense Association concerning the matter of shaking out, trimming of castings, wetting and cutting of sand by members of the International Molders' Union of North America. The members of the Stove Founders' National Defense Association had made earnest effort to carry out the full provisions of this agreement. It was found, in some localities, that it was impossible to secure a sufficient number of laborers to do this work prior to April 1, 1920. Accordingly, a conference between the two Associations was held in New York City, April 3, 1920, at which the inability of some of the foundry men to put the agreement into effect was taken up. In many other industries a strike would have resulted over matters of much less importance. The conference, however, came to an amicable understanding and adopted the following modifications of the previous agreement:

1st. "When it is found that a molder's sand is not in proper condition in the morning, through no fault of the molder, and he has conformed to the letter of instructions to molders dated December 19, 1919, the foreman shall instruct the molder to prepare part, or all, of the sand heap, for which he shall be paid for the time consumed at the rate per hour that he earned the previous day during the molding period.

2nd. "Whenever it becomes necessary for a molder to shake out his floor, because of lack of laborers to do this work, he shall be paid for this work, time and one-half, on the basis of the minimum day wage agreed to between the two associations."

So well have the present officers of the Stove Founders' National Defense Association served its membership and so earnest have been their efforts in widening the advantages of the organization that they were re-elected, for the most part, to serve during the ensuing term, as follows:

President: GEORGE MITCHELL of the Pittston Stove Company, Pittston, Pennsylvania;

First Vice-president: JOSEPH L. ANTHONY of the Weir Stove Company, Taunton, Massachusetts;

Second Vice-president: LEWIS MOORE, Joliet, Illinois;

Treasurer: WILLIAM DWYER of the Art Stove Company, Detroit, Michigan;

Secretary: ROBERT W. SLOAN, Pittston, Pennsylvania.

General Executive Committee.

GEORGE MITCHELL, Pittston, Pennsylvania;

JOSEPH L. ANTHONY, Taunton, Massachusetts;



Lewis Moore, Executive Committee, Stove Founders' National Defense Association.

LEWIS MOORE, Joliet, Illinois;
 WILLIAM A. DWYER, Detroit, Michigan;
 RICHARD E. WARNER, Taunton, Massachusetts;
 D. RAIT RICHARDSON, New York City;
 JAMES MITCHELL, Cleveland, Ohio;
 LEE W. VAN CLEVE, St. Louis, Missouri;
 WILLIAM T. BARBOUR, Detroit, Michigan.
 The following district committees were elected to

take care of local interests in their respective territories under the administration of the Association, as follows:

First District.

JOSEPH L. ANTHONY, Taunton, Massachusetts; ARTHUR W. WALKER, Boston, Massachusetts; O. G. THOMAS, Taunton, Massachusetts; J. P. BARSTOW, Providence, Rhode Island; F. M. LAWRENCE, Portland, Maine.

Second District.

J. A. LANSING, Scranton, Pennsylvania; E. F. HILL, Peekskill, New York; F. N. BRAYER, Rochester, New York; PAUL BROOKE, Royersford, Pennsylvania; W. M. JONES, Richmond, Virginia.

Third District.

GEO. H. BARBOUR, Detroit, Michigan; JOHN M. DWYER, Detroit, Michigan; W. T. BARBOUR, Detroit, Michigan; LAZARD KAHN, Hamilton, Ohio; H. J. KARGES, Evansville, Indiana.

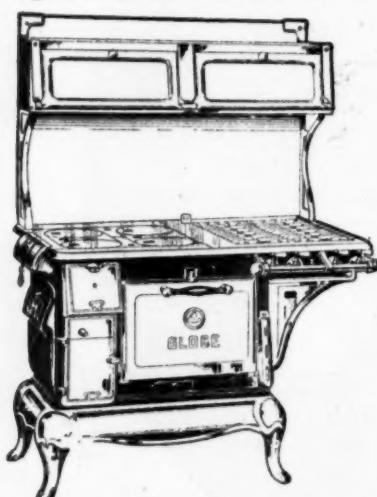
Fourth District.

N. H. BURT, Leavenworth, Kansas; L. W. VAN CLEAVE, St. Louis, Missouri; LEWIS MOORE, Joliet, Illinois; GEO. D. WILKINSON, Chicago, Illinois; T. P. CASTLE, Quincy, Illinois.

The convention of the Stove Founders' National Defense Association was well attended and gave every evidence of the continuance of the spirit of good-fellowship which has dominated its ranks from the beginning.

STOVE COMPANY ADDS NEW FEATURE TO ITS COMBINATION RANGE.

A new feature, which is bound to increase the selling value, has been added to the "Gas-Kol" Combination Range manufactured by the Globe Stove and Range Company of Kokomo, Indiana.



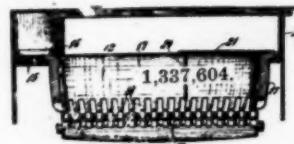
Globe "Gas-Kol" Combination Range
Manufactured by the Globe Stove
and Range Company, Kokomo,
Indiana.

Company has started a national advertising campaign on the "Gas-Kol" combination range. Hundreds of inquiries are received and all are referred to their merchant-dealers, who make the sales. Full particulars concerning the new "Gas-Kol" combination range can be had by communicating with Globe Stove and Range Company, Kokomo, Indiana.

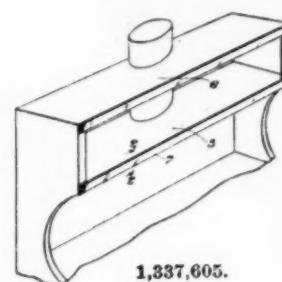
A cheerful heart overcometh many difficulties.

STOVE TRIMMING AND FIREPOT FOR RANGES ARE PATENTED.

Under numbers 1,337,604 and 1,337,605, United States patent rights have been granted to John Jungers, Grafton, Wisconsin, for stove trimming and a firepot for ranges described in the following paragraphs:

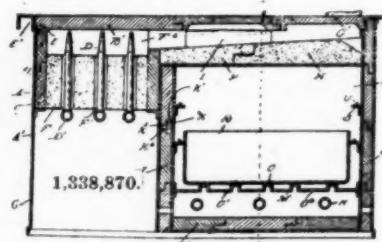


tomless basket-like fire pot having an outwardly extending flange at its upper edge resting upon the supporting plate adjacent the opening and being reversible end for end therein, a blocking device adapted to coöperate with either end of the fire pot having a top section slideable upon the upper edge of the fire pot and a vertical section movable into contact with the converging side walls of the fire pot at either end on endward movement of the top section.



SECURES PATENT FOR A RANGE.

Henry D. Schall, Detroit, Michigan, assignor to Detroit Stove Works, Detroit, Michigan, a Corporation of Michigan, has procured United States patent rights, under number 1,338,870 for a range described as follows:



In a range, the combination with an oven, of burners positioned in the lower part of the oven, a door opening located at the front of the oven, and a supporting plate positioned above said burners and having a plurality of integrally formed U-shaped ribs, said plate being perforated to assist the circulation of the heat and having the upper surface of said ribs located substantially in the plane of the lower edge of the oven door opening, said ribs running lengthwise of the oven toward the front.

We borrow most of our troubles. We anticipate them, and worry; we imagine all kinds of dire calamities; we can see fate just around the corner, ready to smite us with the bludgeon of failure; but when we approach the corner we find that fate has not even noticed us. We have fretted and fumed to no purpose. We have wasted our energies.

THE WEEK'S HARDWARE RECORD

Of Interest to Manufacturer, Jobber and Retailer

AMERICAN ARTISAN AND HARDWARE RECORD
is the **only publication containing western hardware and metal prices corrected weekly.**
You will find these on pages 42 to 47 inclusive.

The Industrial Wire and Metal Works of Newark, New Jersey, contemplates a new plant.

The Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pennsylvania, has plans for extensions and improvements to its plant.

The Wisconsin Iron and Wire Works, 1660 Booth Street, Milwaukee, Wisconsin, is building a one story addition, 76x100 feet, costing \$45,000.

The Milwaukee Woven Wire Works, 3014 Clarke Street, Milwaukee, Wisconsin, has a permit to build a two story addition, 60x116 feet, costing \$22,000.

The Casey-Hudson Company, manufacturer of screw machine products, 361 East Ohio Street, William J. Casey, president, will build a one and two story plant, 300x300 feet, costing \$300,000.

The Butler Elliptical Wrench Manufacturing Company of York, Pennsylvania, has been incorporated with a capital of \$50,000, by George W. Rupp, Willis Abbott and S. D. Warcheim, Glen Rock, Pennsylvania.

Articles of incorporation have been filed by the Snap-On Wrench Company, Milwaukee, Wisconsin, capitalized at \$25,000, to manufacture wrenches and other tools. The incorporators are represented by Attorney J. H. Marshutz, Wells Building.

The A. P. V. Plier Company has been incorporated at Boston, Massachusetts, to make pliers with \$75,000 capital, by Alfred P. Vialle, Medford, Massachusetts; William J. Sands, Dorchester, Massachusetts, and Charles E. McGrady, Brookline, Massachusetts.

PITTSBURGH HARDWARE RETAILERS PLAN INTERESTING MEETING.

A circular sent out by Charles W. Scarborough, Secretary of the Pittsburgh Retail Hardware Dealers' Association, discloses unusual plans for the regular monthly meeting of the organization Thursday evening, May 27, 1920, in Chatham Hotel, Pittsburgh, Pennsylvania. It is worded as follows:

"This will be a meeting extraordinary and will be known as Ladies' Night. A banquet will be served at 7:30 on the Roof Garden after which we will be entertained with music and speaking. This being Ladies' Night an opportunity will be given to them to encourage or condemn any good or bad features in business ethics which are practiced by our members. We have reason to expect some beneficial advice and cooperation from those who are so vitally interested in our welfare.

"The regular business of the meeting will be dispensed very quickly in order that all the time possible may be devoted to pleasure.

"Take notice, with this bulletin you receive a return postal card with full instructions concerning tickets, but more to fully emphasize these instructions we will repeat the important points on this notice.

"Each firm that is a members of this association is entitled to two tickets free, but these tickets will not be sent to you unless you return the postal card stating you want them and in addition any additional tickets can be procured from Mr. S. J. Waring, 815 Wood Street, Wilkinsburg, Pennsylvania, who is chairman of the entertainment committee.

"These additional tickets cost two dollars and fifty cents each. Your check must accompany the request for these additional tickets.

"Don't fail to make your request for your free tickets as soon as you receive your notice and also order your additional tickets early in order that the entertainment committee may be enabled to make the proper reservations for you.

"Every member is expected to be on hand with his best girl and a smile."

RED CROSS TEACHES PREVENTION OF ACCIDENTS AND FIRST AID.

A story is told by the Red Cross to illustrate the need of "safety first" instruction and to call attention the work of the Red Cross in teaching prevention of accidents. It is story of "The Farm John Lost."

The little farm was nearly paid for. With Eliza's chicken and butter profits, and the money from the telephone switchboard, which twelve-year-old Elsie generally operated, and the most careful economy in management of farm and household, John Kenyon felt sure he could pay off the mortgage this year if the season yielded a fair harvest.

Apparently Mother Nature was with John in his ambition to be independent, for the wheat fields were golden with great shocks of grain. The July sun beat down mercilessly on John's broad back and Eliza brought jugs of cold water several times a day to the reapers toiling in the stifling air. A few hours' delay on account of broken machinery or another thresher laid up meant dollars out of John's pocket, and perhaps an extension of the debt he was so anxious to wipe out.

Already one man, the feeder, was in with a lame back. John was taking his place at the thresher. The band cutter had carelessly overlooked a band and suddenly John saw it disappearing into the great maw of the machine.

Quicker than the twinkling of an eye came the

vision of his thresher broken, his harvest delayed, his mortgage held over for another year.

He attempted to pull out the band. He managed to get a slight hold, but alas, too late. Quick as a flash the cylinder caught in the band and instantly drew his hand in.

John's sturdy right arm was gone.

The poor fellow was laid up for weeks. Rain, soon after the accident, interrupted the work, and when the threshers were compelled to move on, to take care of other contracts, John's harvest was not all in.

Much of the money he had saved through his own energy now had to go to keep expensive hired men. Eliza was obliged to neglect her chickens to take care of her sick husband.

The Great Opportunity had passed in one unguarded instant and when the mortgage money fell due, John could not pay.

There was a heartrending scene on the court house steps, as the sheriff sold the property to the highest bidder and the farm and pretty, vine covered cottage passed into other hands.

Had John Kenyon been trained in Accident Prevention and First Aid, the tragedy which blasted his life might have been averted. The First Aider trained in Accident Prevention knows that *Safety is First*. It comes before time, money or machinery—*First*.

Are the men in your community banded together in a Red Cross course in Accident Prevention and First Aid? The Red Cross instruction teaches how to prevent accidents and what to do until the doctor can get there, in case they do happen.

Apply to your nearest Red Cross chapter or auxiliary to find out how to take this first aid course which the Red Cross wants to give you at the expense of a few hours of your time and effort.

HARDWARE FIRM SIGNS A FIVE-YEAR LEASE FOR NEW QUARTERS.

The steady expansion of its business has made it necessary for the T. J. Bowler Hardware Company, 1315 South Wabash Avenue, Chicago, Illinois, to secure larger space. Accordingly the company has signed a five-year lease for the second floor, 301-303-305-307 West Randolph Street, Chicago, Illinois, at a term rental of \$20,000. The new location is in the heart of the wholesale hardware district of Chicago. It affords many conveniences for customers which are sure to enhance the service which the company is able to render them.

TAKES OVER BUSINESS IN WHICH HE BEGAN AS OFFICE BOY.

Beginning thirty-seven years ago as office boy for E. C. Stearns and Company, Syracuse, New York, Thomas M. Gallavin has worked his way step by step through every position in the concern up to and including that of Vice-President.

He now announces to the hardware trade that, together with E. A. Hurdman, Secretary and Treasurer of the firm, he has taken over the business of E. C. Stearns and Company. The personnel of the

Company will remain the same. E. C. Stearns will continue as President but only in an advisory capacity. Mr. Gallavin will remain Vice-President and Mr. Hurdman will continue to act as Secretary and Treasurer.

The news of Mr. Gallavin's good fortune will be received with pleasure by his numerous friends and acquaintances in various parts of the country. For the past twenty years he has covered all the important jobbing points throughout the United States with the wholesale trade, including New York, Philadelphia, Pittsburgh, and all jobbing centers west as far as the Pacific Coast.

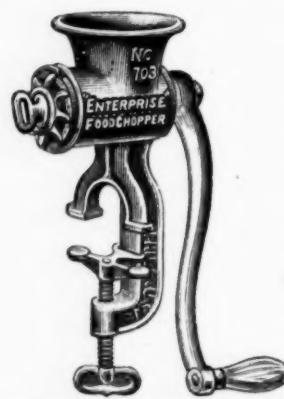
STANDARD GOODS INSURE CONFIDENCE IN HARDWARE RETAILER.

Some hardware dealers make it a policy to handle only the best of everything. Whether it be a nail or the most intricate device handled by the hardware

store, such merchants take pride in selling their customers the highest grade products they are able to obtain. Why should not all hardware retailers adopt the same policy of insuring their patrons the best on the market? There are several reasons. The low price at which inferior goods often is marked tends to mislead some dealers. But such goods are more costly in the end. The customers who purchase them in the course of time find out their inferiority and unreliability. Mentally they connect the dealer from whom they purchased the article with the poor grade of the product. The general public loses confidence in distributors of this type. Now with the many instances on record, does it take further persuasion to show the hardware dealer the desirability of handling standard products—goods of proved worth?

That the Enterprise Food Chopper, illustrated herewith, manufactured by the Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pennsylvania, is a standard product is attested to by many dealers and satisfied users throughout the country. In the first place this product is manufactured of material selected expressly for the kind of work expected from an efficient food chopper. In the second place the general construction of Enterprise Food Choppers is said to be in advance of the ordinary products at present on the market. There are four knives supplied with the food chopper illustrated herewith. They are shaped for specific kinds of chopping. A stuffing attachment can also be supplied with this chopper. Dealers interested should write to the Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pennsylvania, and inquire for catalogue.

It cost considerable money to send our army to France, and it will cost just as much to bring it home.



Enterprise Food Chopper
Number 703, Made by the
Enterprise Manufacturing
Company of Pennsylvania,
Philadelphia, Pennsylvania.

EXHIBITS IN AMERICAN ARTISAN WINDOW DISPLAY CONTEST

WINDOW EXHIBIT OF TOOLS FOR ALL TRADES STIMULATES BUSINESS.

Instinctively the brain responds to the suggestion of symmetry. Logic is nothing more than symmetry of reasoning. The mind assents to a clearly arranged group of arguments and accepts the conclusion without protest. Words are not the only form in which

hensive plan. The result is that this window display presents itself to the eye of the observer as an integral entity. Yet each article is distinct and conveys its individual message to those who pause to examine the display.

The designer of this window display, Charles Byford, describes its arrangement as follows:

"The background was made of wall board painted



Window Display of Tools for All Trades Arranged by Charles Byford for the Mills Hardware Company, 95 King Street, East, Hamilton, Ontario, Canada, Awarded Honorable Mention in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.

logic may be cast. There is logic, for example, in the orderly arrangement of tools for all trades which constitutes the window exhibit shown in the accompanying illustration. This display was arranged by Charles Byford for the Mills Hardware Company, 95 King Street East, Hamilton, Ontario, Canada, and was awarded honorable mention in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition. It draws and holds the attention of the passer-by because all its parts are obviously harmonized with a central purpose. None of the articles has been placed in the window in haphazard fashion. Each has been put in position with reference to a comprehen-

cream and dark green colors. The floor also is of wall board painted in eight inch squares of colors to match the background, namely, cream and dark green.

"In the arrangement of the tools it will be seen that there is no overcrowding. Each article and its price tag can be viewed easily.

"Floor pedestals with twenty-four inch glass shelves were used for raising the display at the side.

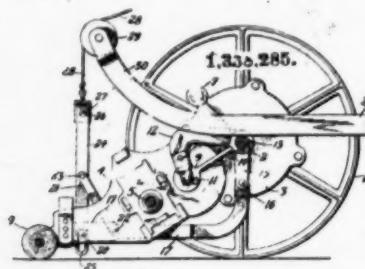
"The arrangement of tool cases at the back gives the display a splendidly built-up appearance.

"The center placard denotes that tools for trades other than those shown are carried in stock by the Tool Department."

Reports of actual sales from this display prove quite conclusively that a good display of tools will stimulate business at any time of the year. Mr. Byford is strongly of the opinion that it is not too often to arrange tool displays once a month. He says that they are of interest to men, whether mechanics or not. Tools are always in demand and there is no season of the year in which some class or other of tools is not in daily requirement.

IS GRANTED PATENT RIGHTS FOR LAWN MOWER STRUCTURE.

United States patent rights have been granted to William P. M. Braun, Philadelphia, Pennsylvania, assignor to Pennsylvania Lawn Mower Works, Philadelphia, Pennsylvania, a Corporation of Pennsylvania, under number 1,338,285, for a lawn mower structure described in the following:



Lawn mower structure comprising a ground engaging wheel, cutter mechanism driven thereby, a support for said cutter mechanism, means for restraining said support against movement with respect to the ground, means for lifting said support from the ground, a lost motion connection between said support and said lifting means, and a member connecting said lifting means with said restraining means.

Lawn mower structure comprising an axle held against rotation, cutter mechanism, a support for said cutter mechanism pivoted on said axle, a projection in fixed position on said support, and means on said axle for engaging said projection for holding said support against rotary motion with respect to said axle.

DISSTON FIRM ACHIEVES TRIUMPH.

When it was suggested that Henry Disston & Sons, Philadelphia, Pennsylvania, make some circular saws 108 inches in diameter to be used in cutting shingle bolts most people laughed and thought the idea crazy. The strain would be too great; no mandrel could hold; a saw with a surface so large could not run straight and true. But even as Marconi accomplished his idea of the wireless telegraph after all the world mocked, so has the Disston firm done what seemed impossible.

On April 10, 1920, two circular saws, 108 inches in diameter, made in the Disston plant in Philadelphia, began their first run in the Coats Shingle Mill at Hoquiam, Washington, and they ran perfectly. There was a large gathering present—all the lumber and shingle men of that section and practically all the mill population of the Gray's Harbor district. Many came to say "I told you so," but all departed marveling at the swiftness and accuracy of the saws.

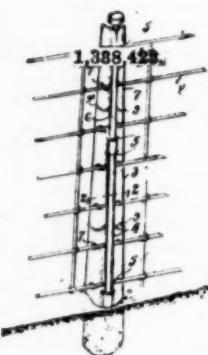
Usually a special saw is built to fit machinery. But as these saws departed from the commonplace in size, so they did in requirements. Special machinery was necessary to carry them. The power turned on,

they began to run slowly, then as the speed grew the hum increased until it sounded like the noise of a swarm of bees. The serrated edge, traveling at a speed of 130 miles an hour, cut through those big Coast logs with an ease and rapidity that astonished experienced mill men. With an ordinary saw the shingle weavers frequently had to wait for bolts to accumulate, with the installation of these saws the crews in the cutting and packing departments were fairly swamped.

The day was a happy one for the shingle industry because, to quote Mr. D. W. Jenkins of Seattle, "With these saws a success, they will revolutionize shingle manufacturing. Smaller saws, of course, will cut the largest logs, but the objection to them has been that they can not sever them completely, but do it in sections, causing them to split and thus wasting considerable timber. The larger saws cut without splitting."

PROCURES PATENT FOR FENCEPOST.

George Benjamin Clarke, Keremeos, British Columbia, Canada, has secured United States patent rights, under number 1,338,423, for a fencepost described herewith:



A metallic fence post being formed from sheet metal and having its sides grooved rearwardly, one end of said post being slotted and bent at right angles to the main part of the post so as to form a retainer against displacement of the post, a perpendicular retainer slidably positioned on said post, concaved sections formed longitudinally on the outer face of said post, pairs of horizontally concaved sections, said concaved sections being adapted to hold horizontal strands of wire pinned between said post and said retainer without the wire being kinked, tightener wires between said post and said retainer, the ends of said wires being tightened and bent around the sides of said post and the center of said wires being frictionally engaged with said retainer to hold the same in position against normal displacement.

GETS POSITION BY ADVERTISEMENT IN AMERICAN ARTISAN.

To AMERICAN ARTISAN AND HARDWARE RECORD:

I wish to inform you that I have accepted a position for which I advertised in your journal. I am both delighted with and grateful for the service which you render.

JOHN C. LOYD.

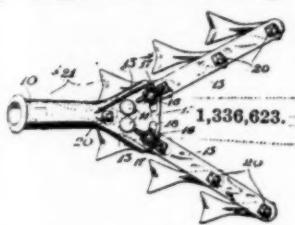
Paw Paw, Illinois, May 17, 1920.

RESIGN THEIR RESPECTIVE OFFICES.

Announcement is made of the resignation of N. T. Jones as Director, Secretary and Sales Manager of the Foster Bolt and Nut Manufacturing Company, Cleveland, Ohio. At the same time M. J. Riley has resigned as Director and Superintendent of the Company.

ADJUSTABLE WEEDEER IS PATENTED.

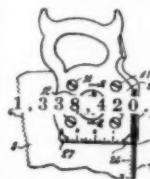
United States patent rights have been granted to John Gilson, Sr., Port Washington, Wisconsin, assignor to J. E. Gilson Company, Port Washington, Wisconsin, a firm consisting of John Gilson, Sr., and John E. Gilson, Jr., under number 1,336,623, for an adjustable weeder described herewith:



binding the arms in angular adjustments, and teeth secured to the head and to the arms and projecting downwardly and curving forwardly with their front ends pivoted with broad recessed knife edges the path of each tooth overlapping the path of the next tooth.

PATENTS COMBINATION HAND TOOL.

Under number 1,338,420, United States patent rights have been granted to George Byron Caldwell, Ottawa, Ontario, Canada, for a combination hand tool described as follows:



An article of the class described, consisting of a saw blade, one side of said saw blade being provided with cutting teeth, the opposite side of said blade having numerals impressed thereon, a handle having its butt end bifurcated, the end of said saw blade being suitably held in said bifurcated end, oppositely registering openings in the respective sides of said handle, a T-shaped opening in said blade between said openings, a level positioned in said T-shaped opening, suitable plates in said openings to hold said levels in said saw blade, the level in the top of the T-shaped opening being parallel to the side of the saw on which said numerals are impressed, the other level being parallel to the butt end of said handle.

PRESENTED BY BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

The Bureau of Foreign and Domestic Commerce, through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

32749.—A hardware company in Canada desires to purchase electric washing machines. Quotations should be given f. o. b. port of shipment. Cash payment will be made. References.

32750.—A merchant in Argentina desires to purchase or secure an agency for the sale of cutlery. Correspondence may be in English. References.

32777.—A firm of merchants in Uruguay desires to purchase bazaar articles such as fancy articles of both metal and porcelain, hardware, household and kitchenware articles,

toys, glassware, paints and oils. Quotations should be given f. o. b. New York. Payment will be made against delivery of documents. Catalogues are requested. Correspondence should be in Spanish. References.

32790.—An import firm in Germany desires to be placed in communication with manufacturers of agricultural machinery of all kinds and tools, and also with an export merchant of the United States. References.

32791.—A commercial agent in Australia desires to represent firms for the sale of portable typewriters, duplicators, and modern office appliances. References.

32792.—A firm in Portugal desires to secure an agency and purchase agricultural implements, hardware, etc. Correspondence may be in English. References.

32793.—An automobile-sales company in France desires to purchase and secure an agency for the sale of motor-car accessories of every description. Quotations should be given c. i. f. French port. Correspondence may be in English. References.

32796.—An importer in India desires to secure an agency for the sale of cutlery, metals, etc. Quotations should be given c. i. f. Colombo, Cochin, or Tuticorin. Payment will be arranged by documentary credits at 90 days' sight. References.

32797.—A firm of importers in Syria desires to receive offers from American exporters of carpenters' nails, shoemakers' accessories, solder, and tin metal for coating copper utensils. Payments will be made in cash.

32799.—A merchant in France desires to purchase unmanufactured copper, lead, tin, aluminum, and other metals in bars. Quotations should be given c. i. f. Havre. Payment will be made against documents on arrival in French port. Correspondence should be in French. Reference.

32801.—A manufacturers' representative in Argentina desires to act as representative for the sale of paints and varnishes, and hardware. Terms of payment will be 60 days' sight draft attached to documents. References.

32808.—A merchant in Switzerland desires to secure an agency for the sale of tools, belt locks, and hardware specialties. Correspondence may be in English. Reference.

32812.—A merchant in Mexico desires to purchase one car load of galvanized ware in the form of washtubs and buckets in all sizes. Quotations should be given c. i. f. El Paso, Tex. Terms of payment, 30 or 60 days desired, or cash against documents. References.

32814.—A company of importers in India desires to purchase and secure the sole agency for the sale of hardware and merchandise suitable for that country. Quotations should be given c. i. f. India port. References.

32815.—A firm of importers in Bulgaria desires to purchase and secure an agency for the sale of construction material, such as nails, all kinds of iron, rods, sheet iron, zinc plates, and galvanized sheets; doors and window accessories, and any kind of material used in the construction of buildings. Quotations should be given c. i. f. Bulgaria, or f. o. b. American ports. Correspondence should be in French, German, or Bulgarian. References.

32817.—The representative of a firm in Australia is about to visit the United States and desires to secure an agency, on a commission basis, for the sale of aluminum household utensils, sheet aluminum, automobile accessories, hardware, etc. References.

COMING CONVENTIONS.

Western Warm Air Furnace and Supply Association, Peoria, Illinois, June 8, 1920. John H. Hussie, Secretary, 2407 Cuming Street, Omaha, Nebraska.

National Association of Sheet Metal Contractors, Peoria, Illinois, June 8, 9 and 10, 1920. Edwin L. Seabrook, Secretary, 261 South Fourth Street, Philadelphia, Pennsylvania.

National Retail Hardware Association, Lafayette Hotel, Buffalo, New York, June 22, 23, 24, and 25, 1920. Herbert P. Sheets, Secretary, Argos, Indiana.

Mississippi Retail Hardware and Implement Association, Agricultural College, Mississippi, July 13, 14 and 15, 1920. E. R. Gross, Secretary-Treasurer, Agricultural College, Mississippi.

Ohio State Sheet Contractors' Association, Toledo, Ohio, July 20, 21, and 22, 1920. W. J. Kaiser, Secretary, Columbus, Ohio.

Kentucky Hardware and Implement Dealers' Association, Louisville, Kentucky, January 25, 26, 27 and 28, 1921. J. M. Stone, Secretary, Sturgis, Kentucky.

Wisconsin Retail Hardware Association, Milwaukee, Wisconsin, February 2, 3 and 4, 1921. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February 15, 16 and 17, 1921. Leon D. Nish, Secretary, Elgin, Illinois.

ADVERTISING CRITICISM AND COMMENT

Helpful Hints for the Advertisement Writer

In spite of much fault finding and grumbling, truth is making headway in the business of this country. The Associated Advertising Clubs of the World have been instrumental in establishing Better Business Bureaus in the leading industrial centers of the United States the chief function of which is to encourage

ments. The advertisement under discussion measured 14x6½ inches in the original. It is artistically conceived and neatly designed. The frank statement of prices gives it conclusiveness and puts the finishing touch upon an example of printed salesmanship which is worth the emulation of other hardware merchants.

* * *

Even advertisements can be so worded that they will convey a friendly sort of feeling. Illustrative of this is the advertisement of the Clifford's Hardware Store, Ashtabula, Ohio, reproduced herewith from the *Ashtabula Star and Beacon*, Ashtabula, Ohio. The statement "Take Home a Toy" is an appeal to the home-loving sensibilities of the reader. It will



**YOU CAN DEPEND UPON
OUR ADVERTISING**

This business was founded on the right policy of truth in advertising—every statement we make regarding our prices or merchandise is true, for misrepresentation has no place in our establishment. You can shop here with confidence and the assurance that you are getting full value for your money.

DEPENDABLE BUILDERS' HARDWARE

In building, the importance of buying good hardware is oft' times overlooked. Good locks, hinges, sash and door equipment are a very small part of a building, but will repay many times for the cost and trouble of proper selection, for cheap goods are a continual source of worry and bother.

We are prepared to furnish all of your building hardware needs in grades and at prices that will satisfy entirely. Let us give you an estimate on your building hardware needs.



PRETTY NEW CHINA IN COMPOSITION SETS

Every woman takes pride in the appearance of her table. The women of this section will be delighted with these new sets we have just opened up and put on display. There is a wide variety of designs to choose from in plain white with gold band and conventional key border pattern. See the window display.

56-Piece Dinner Service, price \$60.50

Attractive Line of Tools for the Home

All of the necessary tools for doing those repair jobs about the home, which if left to go become expensive, inconvenient and destructive.

We have an exceptionally well selected assortment of household tools to select from.

Nail Hammers, Southern's Price	75c
Hand Saws, Southern's Price	\$1.50

SOUTHERN
HARDWARE CO.

truth and discourage fraud and misrepresentation in advertising. It is in line with this policy that the Southern Hardware Company, Tulsa, Oklahoma, places stress upon the reliability of its statements in the advertisement which is herewith reprinted from *The Daily World*, Tulsa, Oklahoma. There is no question of the good accomplished by this sort of introduction to an advertisement. Confidence is the life-blood of business. It must be maintained in order that we as a nation may go forward to greater achieve-

Take Home a Toy

We will show all the latest Toys during the Festival. Remember the children. Take home a Toy.

Special Sale

12 quart Galvanized Pails for 38c
 Adjustable Clothes Props, 40c value 25c
 Big bargains in secondhand Gas and Soft
 Coal Heaters

Clifford's Hardware

Ashtabula's Leading Stove Store

not be doubted that when the reader who has children in his home peruses this advertisement he will picture to himself the joy that would result should he take the advice before him. The copy following the initial statement is in conformity with the heading. The second half of this announcement, however, is a complete deviation from the sense of the first half. In fact, this advertisement could be clipped in the middle, the name and address of the advertiser subjoined to the upper portion and two complete announcements would result. Neither half has any relation to the other, except that the articles mentioned are sold by the same store. Whether this is advisable can be decided only by an account of the results from this advertisement. Otherwise there is no basis upon which to criticize this practice. Each half of the advertisement appeals equally to certain classes of readers.

HEATING AND VENTILATING

SEMIANNUAL MEETING OF HEATING AND VENTILATING ENGINEERS WILL BE INSTRUCTIVE.

A bulletin from the office of C. W. Obert, Secretary American Society of Heating and Ventilating Engineers, 29 West Thirty-ninth Street, New York City, says that the Society in celebrating its twenty-sixth Semiannual Meeting in St. Louis, Missouri, May 26, 27, and 28, 1920, as the guest of St. Louis Chapter, will enjoy an unusual treat both professionally and in the opportunity of coming again into close touch with the spirit of the West. Every member who can possibly do so, is urged by the Council to attend and enjoy the opportunity of acquaintance with the two new Chapters of the Society in Missouri and become familiar with the remarkable engineering developments there. The enthusiastic response from all engineers of the city in cooperating for the complete success of the meeting promises wonderful results.

An unusual professional program has been arranged and this meeting will be characterized by two important Society undertakings in which an effort will be made to establish reliable standards as guides for practice. The establishment of an effective Standard for Ventilation will be here attempted as one of the first and most important results of the work of the Research Bureau at Pittsburgh, and also discussion upon a proposed Standard for Testing Heating Systems will here be started in order to guide the future work of the Research Bureau in this direction. Also there will be interesting and important committee reports and a comprehensive statement of the most recent work of the Research Bureau.

This meeting will be held in conjunction with the spring meetings of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers. An attractive feature of the meeting will be that the arrangements for the entertainment of the visiting members and guests are to be handled by a joint entertainment committee of the local sections of the three societies in St. Louis. The first feature to which the members will be invited will be an excursion on Wednesday, the 26th, to the Bevo Plant of the Anheuser-Busch Brewing Association where a special luncheon will be served at 1 p. m., following which an opportunity will be afforded for the members to inspect the plant if desired. On the evening of Wednesday, the 26th, a theatrical entertainment will be offered at the Municipal Open-air Theatre in Forest Park which will be performed by students from Washington University. On Thursday evening the three societies will join in a river boat excursion up the Mississippi River to Chain of Rocks where not only a fine view is af-

forded, but also the opportunity will be given to inspect the municipal water works and filter plants. On Thursday evening will be held the banquet of the meeting which will be conducted jointly with the American Society of Refrigerating Engineers.

The registration headquarters of the Semiannual Meeting of 1920 will be held on the fifth floor of the Board of Education Building, at 9th and Locust streets, St. Louis, Missouri. The St. Louis Board of Education has very cordially tendered to the local Chapter the use of its spacious and attractive assembly room which will afford excellent accommodations for the sessions of the Semiannual Meeting. All members attending the meeting are, therefore, requested to proceed direct to the Board of Education Building and register with the idea of receiving a badge for the meeting immediately upon arrival.

DISCUSSES NEW THEORIES OF THE RELATION OF PHYSIOLOGY TO VENTILATION.

In a paper read at the recent annual general meeting of the Institution of Heating and Ventilating Engineers, London, England, A. H. Barker, B. A., B. Sc., discussed new theories of the relation of physiology to ventilation. Some of the important paragraphs of his instructive treatise are herewith reproduced:

It is very desirable that heating and ventilating engineers should understand exactly what is the modern view of the function of ventilation. Perhaps a brief statement of the physiological aspect of the matter will be of interest. There are few subjects on which it is easier to theorize than ventilation. Theorizing is easy because experimental work is extremely difficult. Only those who have spent a great deal of time in endeavoring to obtain self-consistent and definite results from experiments on matters connected with ventilation can realize how difficult it is to lay down any definite laws on so complicated and nebulous a subject.

Most well-informed ventilating engineers are now aware that the theory of ventilation has during the past few years undergone some very striking and almost revolutionary alterations. I propose in the present paper to discuss some of these theories in outline, and to point out the effect on design and cost which they would effect if they were adopted.

The alterations in the view taken of the function of ventilation originally proceeded from a consideration of the fact that carbon dioxide, at any rate when not of animal origin, and in moderate quantity, does not appear to exercise any deleterious effect whatever upon the human organism. The discovery itself is not of recent date. It is at least fifty years since it was pointed out by an eminent Frenchman that car-

bon dioxide is not a poisonous gas except in great concentration.

Up to the time when this view penetrated the consciousness of physiologists it had been customary to regard the carbon dioxide in expired air as the essentially deleterious product, and the introduction of that gas as the cause for the undoubtedly bad effects of living in vitiated air.

The theory was that since a person who is immersed in air having a large proportion, say above 300 parts in 10,000 of air, of carbon dioxide, can not live, he contracts what is called carbon dioxide poisoning, and as undoubtedly the effect of breathing air is to add to the amount of carbon dioxide in it, and having regard to the fact that expired air is unquestionably deleterious, one is apt to jump to the conclusion, which indeed appears at first sight obvious, that the carbon dioxide in expired air is the poison which is to be guarded against by free ventilation of spaces inhabited by human beings.

Further reflection on the physiological aspect of

CO₂ in the breathing air becomes so great as to get beyond the capacity of the proper working of this automatic mechanism, no ill effects can be detected.

Analysis of the air in some of the most grossly overcrowded buildings ever found in practice reveals the proportion to be not greater than perhaps 50 parts in 10,000, which is less than one-tenth of the degree of concentration of the air already in the lungs. Hence it became necessary to formulate some other theory. Various such theories were adopted in succession, only to be disproved; for instance, that the diminution in the quantity of the oxygen in the air had anything to do with the matter. This was shown to be impossible.

It was also proved that there are no organic poisons, bacteria or particles of any kind in the expired air of a healthy person. Naturally diseased persons do disseminate their own specific pathogenic bacteria in their breath, but this fails to account for the undoubted fact, which shou'd never be lost sight of, that it is actually generally deleterious and debilitating to a

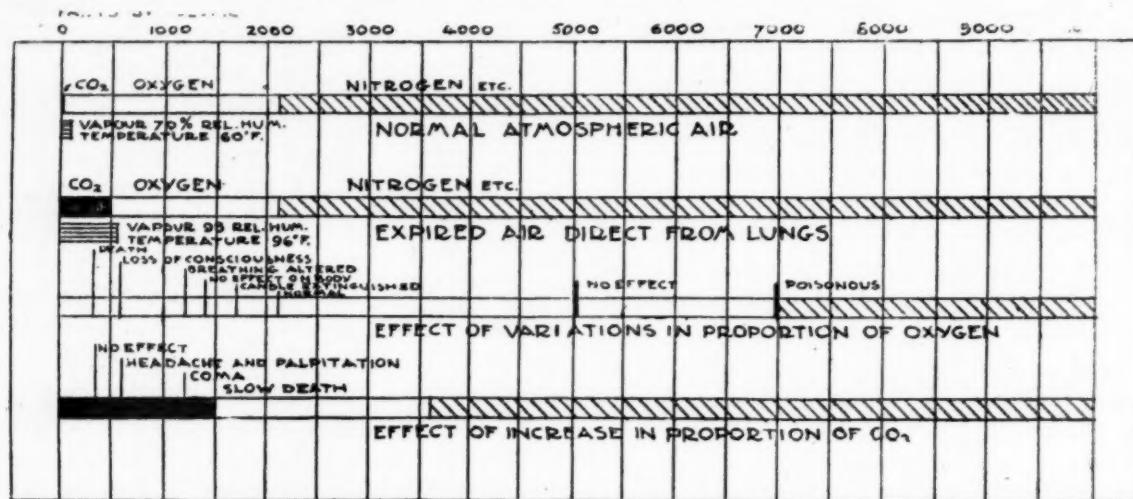


FIGURE 1. Chart Illustrating Effect of Quality of Breathing Air.

the matter led to the enquiry *how* this presumed poisoning of the human mechanism takes place. Analysis of air found in the inside of the lungs revealed the fact that it never varies very greatly from 500 parts of carbon dioxide in 10,000 of air, and that the CO₂ in the blood only varies by a minute fraction, and that CO₂ of animal origin is in no way different from the chemically manufactured article.

In the light of these undoubted facts it appears obvious that the alteration of a few per cent in the air breathed can not have such an enormous effect on its suitability for breathing. I show in Fig. 1 a proportional diagram to illustrate these figures.

It was found also that however bad (in reason) the air which one breathes may be, it has no perceptible effect on the composition of the air as maintained in the lungs by the process of breathing. It was shown that the only effect of an increased quantity of CO₂ in breathing air is an automatic one, namely, to cause a person immersed in air in which there is an abnormally large proportion of CO₂ to breathe more deeply as that proportion increases, the degree being somehow regulated automatically in such a way that the proportion of CO₂ actually *in the lungs* is kept perfectly constant, and that until the concentration of

human being to live in a shut-up space, and so breathe the same air over and over again, even though no specific disease is communicated.

That, however, is perhaps not a perfectly accurate way of expressing the fact. It is not the fact of living and rebreathing the same air which is deleterious, but living in air which is in an unsuitable condition, whether the same air has been previously breathed or not.

The outstanding point to observe is that it has apparently been definitely proved that it is not the alteration in the chemical, nor the bacteriological, nor the particulate composition of the air which produces these generally deleterious conditions, but something else.

So far as its chemical action is concerned, the exact quality of the air appears to be of little moment. The operation of breathing, and the effects produced in the body by that vital function are, of course, chemical in character.

The chemical quality of the air in the sense of its oxygenating power is its important characteristic. The oxygen becomes dissolved in the blood, and this is carried by the circulation to all parts of the system. The food is thereby oxidized, and the energy liber-

ated. But it is easily shown that there is quite enough oxygen, even in extremely bad air, to satisfy the needs of the body in this respect.

For the process to be carried out quite satisfactorily almost any form of air will serve which contains much less oxygen even than extremely bad air itself, and which is not charged with poisonous gas.

Carbon dioxide is not a poisonous gas, as, for instance, carbon monoxide is. The essential reason then why air must be fresh, if it is to be satisfactory for living in, is not that if it is otherwise, an impure quality of air, or any pathogenic bacteria, or any dust, or any particulate matter is absorbed into the blood, but that if its physical condition is not satisfactory, it does not produce the correct or desirable effects on the outside or skin surface of the body.

In general terms the theory is that the presence of persons' bodies for a long period in the same surroundings produces physical conditions in the air which are not satisfactory for dissipating the surplus heat from the body, and that it makes little difference whether these conditions have been produced by persons' bodies or their breath, or by any other means. It is the conditions themselves and not the character of their origin which is important.

This theory has perhaps been carried to extreme lengths. I am quite satisfied from experience that the adequate and suitable cooling of the human body and the suppression of smell or dust are not the only important functions of ventilation, but it must be clearly pointed out that this is essentially a physiological or hygienic matter on which the opinions of any engineer must of necessity be more or less amateur or common-sense in character. The close connection between heating and ventilation is clearly indicated in this theory. In order to understand the theory fully it is desirable to consider what the human body is, and what are the conditions necessary for its continued well-being.

A human being may be regarded as a mass of matter, not of constant shape, and never wholly at rest, provided with an internal heating apparatus. It is a fundamental condition for the well-being of this mass of matter that it shall be kept very closely at a constant temperature throughout its mass (though not necessarily on its surface), even although the temperature and other conditions of the surroundings may vary very widely—from many degrees below the freezing point up to the body temperature, or even much higher.

Heat is supplied to the interior of the body by a transformation of the energy of the carbon and hydrogen taken in in the food. The value of the food as food can be exactly estimated on a calorimetric basis. Of course we all realize that energy in all its forms is fundamentally the same thing, that work and heat are interchangeable in the proportion of 778 foot-pounds of work to 1 British thermal unit of heat.

The food taken in is absorbed in a way which need not concern us, and distributed by the circulation of the blood all over the body. After absorption the liberation of the energy of the food, chiefly in the form of heat, takes place by oxidation in the interior of the

body tissues. By some marvelous process the exact nature of which is unknown, the rate of oxidation is automatically regulated by the temperature of the environment and by the amount of muscular work done.

(To be continued.)

BEARS DETAILS OF DISTINCTIVENESS.

The popularity of pipeless warm air heaters is increasing rapidly. Dealers will have noticed that in many cases a pipeless warm air heater supplies a need which could not be furnished by any other system of heating. This form of warming holds a distinct place in the heating field. However, all pipeless warm air heaters are not the same. Though generally conforming to some basic principle, they differ in vital details. It will be to the interest of warm air heater installers to study these points of divergence and determine which make of pipeless warm air heater

Cozy Pipeless Warm Air Heater, Made by The Schill Brothers Company, Crestline, Ohio.

will best suit his purposes. Herewith is illustrated a pipeless warm air heater, manufactured by The Schill Brothers Company, Crestline, Ohio, whose popularity will not be questioned. The Cozy Pipeless Warm Air Heater has some interesting features of construction. The one piece bottom of this pipeless warm air heater does away with the bother of leveling in order to install. There is no base rings to trouble with in setting. The radiator head is perfectly tight and leakage is said to be impossible. A large and roomy pit is a distinctive detail of construction. The grate is triangular and is built so as to give long and efficient service. An improved draft door and a very large ash pit door are characteristics of the Cozy Pipeless Warm Air Heater. Throughout this pipeless warm air heater can be noticed the stamp of the individuality of the manufacturer. The metal employed is of an unusually high grade. Descriptive literature can be procured by writing The Schill Brothers Company, Crestline, Ohio.

• • •

Optimism is sometimes rather hard to maintain when immediate surroundings do not have a particular rosy hue, but on the other hand, if optimism is to be justified, it can not be done by deliberately closing our eyes to unfavorable developments. The part of wisdom lies in recognizing them and endeavoring to correct them.

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PRACTICAL HELPS FOR THE TINSMITH

BOARD OF DIRECTORS OF WISCONSIN SHEET METAL CONTRACTORS HOLD MEETING IN MILWAUKEE.

In response to a call sent out by C. W. Pansch, Secretary, the newly elected officers of the Master Sheet Metal Contractors' Association of Wisconsin, constituting its Board of Directors, held their first meeting, May 5, 1920, at the Builders' and Traders' Exchange, 456 Broadway, Milwaukee, Wisconsin. Plans for intensifying the service of the organization to its members were discussed at much length.

A hearty endorsement was given to the new Salesmen's Auxiliary to the Master Sheet Metal Contractors' Association of Wisconsin. An invitation was extended to a committee of the Salesmen's Auxiliary to be present at the next meeting of the Board of Directors and to make arrangements for definite co-operation calculated to benefit both the salesmen and the members of the contractors' association.

Resolutions of respect and condolence were ordered drawn and sent to AMERICAN ARTISAN AND HARDWARE RECORD and relatives of Daniel Stern recently deceased proprietor and publisher of this publication.

The chairmen of all standing committees were made ex-officio members of the Board of Directors and will be notified to attend future meetings of the Board.

The following delegates were appointed and given credentials to attend the annual convention of the National Association of Sheet Metal Contractors of the United States to be held June 8, 9, and 10, 1920, in Peoria, Illinois: C. F. Warning, C. G. Jones, and Louis Hoffman. As alternates, F. W. Diedrich, V. S. Kubly, and C. W. Pansch were named.

It was decided to hold meetings of the Board of Directors every two months or at the call of the President.

SHEET METAL MANUFACTURERS START CAMPAIGN FOR MEMBERSHIP.

An aggressive campaign for membership has been started by the National Association of Sheet Metal Products Manufacturers. All manufacturers who fabricate sheet metal and sell their products to sheet metal contractors are eligible to membership in this association which was organized August 22, 1911. The present officers of the organization are:

President: M. B. ARMSTRONG of Thomas and Armstrong, London, Ohio;

Vice-presidents: R. HARDESTY of Hardesty Manufacturing Company, Denver, Colorado; F. L. NELSON of O. K. Harry Steel Company, St. Louis, Mis-

souri, and E. E. WILD of Columbian Steel Tank Company, St. Louis, Missouri;

Treasurer: E. E. PLACEK of Nebraska Culvert and Manufacturing Company, Wahoo, Nebraska;

Secretary: D. C. JONES of St. Paul Roofing, Cor-nice and Ornament Company, 1016 Commerce Building, St. Paul, Minnesota.

URGES EARLY HOTEL RESERVATIONS.

Responses from various parts of the country indicate an unusually large attendance at the Annual Convention of the National Association of Sheet Metal Contractors of the United States July 8, 9 and 10, 1920, in Peoria, Illinois. Convention headquarters will be at the Hotel Jefferson. It is the firm opinion of those charged with the convention arrangements that hotel accommodations during the annual meeting will be at a premium. The National Secretary, Edwin L. Seabrook, Philadelphia, Pennsylvania, urges all delegates and alternates to lose no time in making hotel reservations. Besides the Hotel Jefferson there are six other hotels in Peoria, all within four blocks of convention headquarters; namely, the Fey, Grant, Seneca, Mayer, Niagara and Harold.

ISSUES BOOK OF METAL STATISTICS.

Especialy valuable to people in the sheet metal trade is the thirteenth annual edition of "Metal Statistics 1920," published by the American Metal Market and Daily Iron and Steel Report. This volume gives the monthly averages of prices, computed from daily quotations. Its production statistics are gathered from what may be considered the most trustworthy sources and special acknowledgment is made to the United States Geological Survey and, in the case of all iron and steel production statistics of the United States, to the American Iron and Steel Institute. Average prices are given for pig iron since 1799, rails since 1847, iron bars since 1845, iron bars from stores since 1844, and copper since 1860.

TELLS OF GOOD SERVICE RENDERED BY AMERICAN ARTISAN.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

Two firms wrote me in answer to my inquiry in regard to rubber hose immediately after seeing it in your paper and I am now buying hose from both of them. I thank you very much for helping me find what I need.

Yours truly,
CHARLES F. SCOTT.
Memphis, Texas, May 15, 1920.

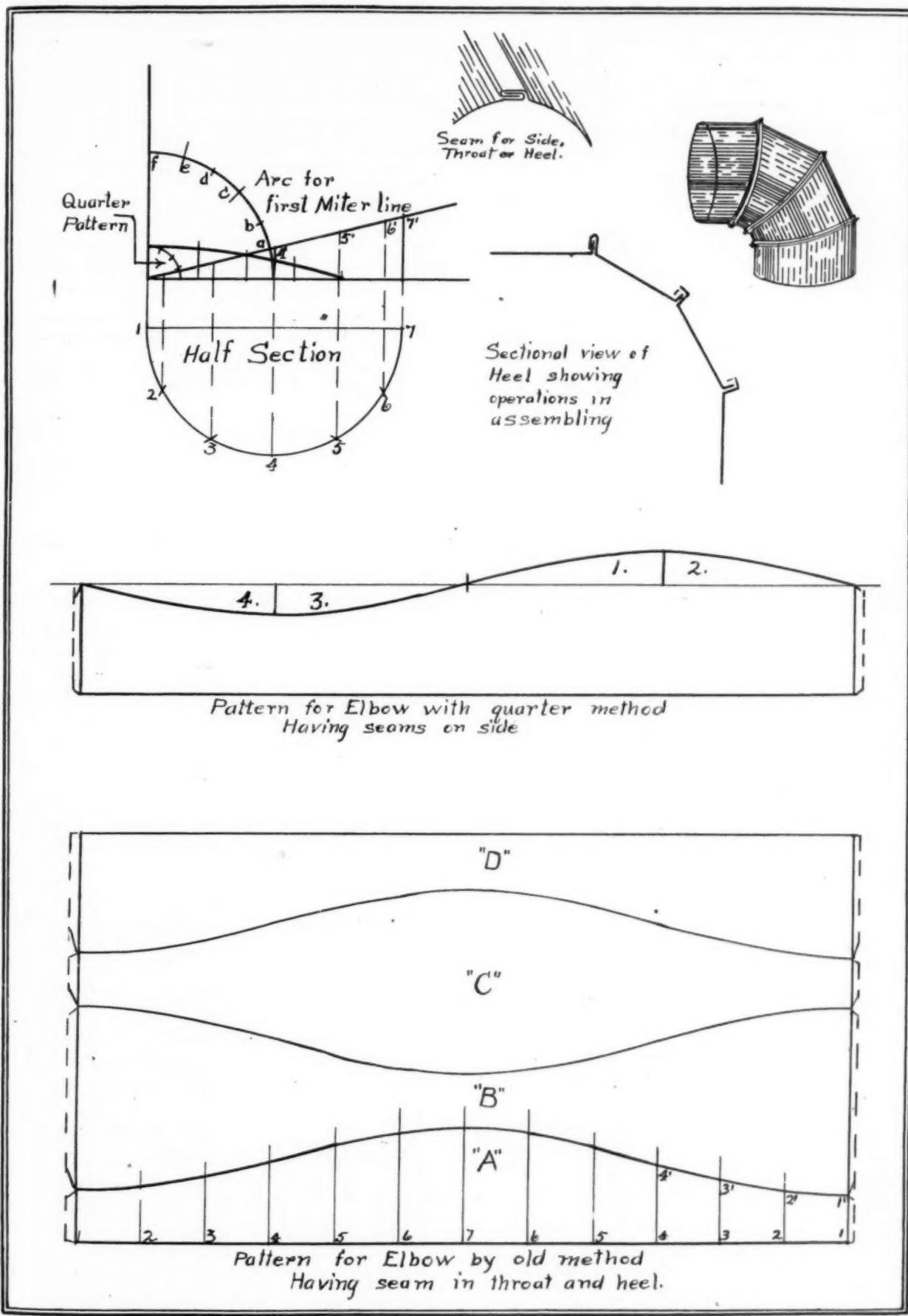
Information is the lance of business.

PATTERNS FOR A FOUR PIECE ELBOW.

By O. W. KOTHE.

The development of elbows is always of interest, especially that most every workman claims to have a

method of his own. There are numerous ways of going at this and each workman proclaims the method he best understands. So in our working drawing we depart a trifle from the old elevation method. We describe the quarter circle a-f to equal half the diameter of elbow. As we require a four piece elbow we say



method of his own. There are numerous ways of going at this and each workman proclaims the meth-

$4 \times 2 = 8$ minus 2 equal six spaces. So this arc is divided in six equal parts. This gives

us the first miter line which is all we desire.

Next, describe the half section and treat in equal spaces and erect lines to the miter line. The line 1-7 can be drawn down low enough to do for the end gore piece. The lines thus produced we set off as in pattern "A". Observe the girth is made equal to twice the spaces in half section. It is always best to measure this girth so no errors will have crept in.

After the stretchant lines are erected, the lines are picked from 1-7 to miter line of working drawing. These set in numerical order as in pattern "A." When this miter line is traced, it is cut, thereby using pattern "A" as a templet for "B", "C" "D." The workman makes the length of throat to suit the sweep of elbow he desires. For perfect accurate work it is best to describe the arc for throat and in this way we always get just what we make.

For rapid work the quarter method is often referred to. It can be developed direct from the miter line, and is only equal to $\frac{1}{4}$ the full girth of elbow. This little pattern is cut out and used as a templet for marking the miter cut by placing it in positions 1-2-3-4. This gives us a fish tail-elbow by starting in the middle. For quick work this has much to commend on. But for furnace elbows, etc., where multitudes are made it is best to make a full size templet as most shops possess.

METAL BRANCH NATIONAL HARDWARE ASSOCIATION ISSUES PROGRAM FOR NINTH CONVENTION.

The two days which have been set aside for the Ninth Annual Convention of the Metal Branch of the National Hardware Association, May 21 and 22, 1920, in Hotel Cleveland, Cleveland, Ohio, will be used to the greatest possible advantage. This is assured by the value and variety of the topics for discussion and the knowledge and ability of the men selected to discuss them. The program for the sessions is as follows:

Program of the Ninth Annual Convention of the Metal Branch of the National Hardware Association, May 21 and 22, 1920, in Hotel Cleveland, Cleveland, Ohio.

Friday, May 21, 1920.

Morning Session, 10 o'clock.

Opening remarks by the Chairman of the Metal Branch, W. H. Donlevy, Carter, Donlevy and Company, Philadelphia, Pennsylvania.

Appointment of Nominating Committee.

Discussion: Production and Demand for the Balance of 1920. F. M. Fuller, American Sheet and Tin Plate Company, Pittsburgh, Pennsylvania, and J. B. Roberts, Youngstown Sheet and Tube Company, Youngstown, Ohio.

Discussion: Export Conditions.

Discussion: Relative Price of Steel Products Compared With Other Commodities. W. K. Singleton, The Carnahan Tin Plate and Sheet Company, Canton, Ohio.

Report: Sheet Steel Conference Committee.

Discussion: The Proper Function of the Jobber. John N. Remsen, The Stark Rolling Mill Company, Canton, Ohio.

Discussion: The Service Performed by the Jobber as and Carpenter Company, Providence, Rhode Island.

Discussion: How has the situation changed with respect to the differential necessary in view of present increased costs?

Discussion: Should not mills give more consideration to their regular old established distributors than to speculators? F. O. Schoedinger, Columbus, Ohio.

Discussion: The expense of the distributor in handling warehouse business as compared to direct mill shipments. M. M. Riter, Riter Brothers and Company, Philadelphia, Pennsylvania.

Discussion: Should it be necessary for small buyers of

high grade steel sheets and cold rolled strip steel to purchase their requirements direct from the mill?

Discussion: The necessity for a reasonable limitation of the sizes and styles of sheets to be carried by jobbers. R. H. Southworth, The Betz-Pierce Company, Cleveland, Ohio.

Adjournment 12:45 p. m.

Afternoon Session 2:30 o'clock.

Report: Insurance Classification Committee. S. H. Taylor, Merchant and Evans Company, Philadelphia, Pennsylvania.

Discussion: Has the multiplicity of brands in the Terne Plate Industry had the effect of retarding its growth? N. B. Handy, N. B. Handy Company, Lynchburg, Virginia.

Discussion: Cooperation among Distributors in the North same territory. F. J. McNeive, W. F. Potts Son and Company, Incorporated, Philadelphia, Pennsylvania.

Discussion: Credit Conditions. What steps can be taken to assist the small Sheet Metal Contractor and Tin Roofer in collecting outstanding accounts? Quincy W. Wales, Brown-Wales Company, Boston, Massachusetts.

Discussion: If conditions should revert to a normal or subnormal basis how can the expense account be reduced?

Discussion: Increased Cost of Carting.

Discussion: Advantages and disadvantages of the location of a metal distribution house adjacent to a railroad.

Adjournment 4:30 p. m.

Saturday, May 22, 1920.

Address: The General Iron and Steel Situation. John A. Penton, President The Penton Publishing Company, Cleveland, Ohio.

Discussion: Is not the metal jobber the logical distributor for metal specialties and kindred supplies? Is enough emphasis placed upon this end of the business?

Discussion: What items not generally distributed by metal jobbers could logically be sold by salesmen calling on Sheet Metal Contractors and Roofers?

Discussion: What steps can be taken to show the manufacturers of specialties that the most economic medium of distribution is through the jobbing trade?

Discussion: New uses for Sheet Zinc. C. H. Stewart, The American Zinc Products Company, Greencastle, Indiana.

Discussion: To what extent do our Members handle Pipeless Furnaces? Is this business profitable? A. K. Raub, Raub Supply Company, Lancaster, Pennsylvania.

Discussion: How can the sale of galvanized shingles be stimulated by distributors in the North and East?

Discussion: The distribution of radiator cores and other supplies for repairing automobile radiators and fenders.

Discussion: The Distribution of Furnace Pipe and Fittings. A. P. Lamneck, The W. E. Lamneck Company, Columbus, Ohio.

Discussion: Increasing the sale of Sheet Copper for roofing purposes. J. J. Lockwood, The American Brass Company, Buffalo, New York.

Discussion: Channels of distribution for roofing cement and kindred lines. M. I. Strauss, The Federal Process Company, Cleveland, Ohio.

Discussion: What is the most economical method of distributing solder? Milton L. Lissberger, Marks Lissberger and Son, Incorporated, Long Island City, New York.

Discussion: The future of the Register Business.

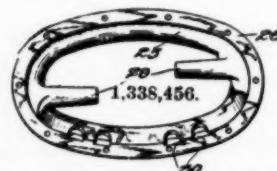
Report of Nominating Committee.

Statement of preference of place for next annual meeting.

Adjournment.

PATENTS METAL WORKING MACHINE.

United States patent rights have been granted to William C. Loring, Hartford, and Charles E. Jacobson, Manchester, Connecticut, assignors to A. F. Way Company, Incorporated, Hartford, Connecticut, a Corporation of Connecticut, under number 1,338,456, for a metal working machine described in the following:



A metal working machine comprising a plurality of metal cutting mechanisms, each capable of performing a function different from another of said mechanisms, and each involving a work holder and a tool holder, at least at substantially the center of the ring-like burner, and the entire remainder of the burner interior being free of projections or the like so as to allow heat from the burners to freely create swirling eddies at the center of the burner interior.

THE COPPER AND BRASS RESEARCH COMMITTEE IS GATHERING DATA ON USE OF THE METALS.

The Copper and Brass Research Committee, consisting of leading men in the industry, has under consideration the advisability of undertaking an extensive advertising campaign in the interest of the copper and brass producing, fabricating and manufacturing industries. As a preliminary to this campaign an exhaustive research into the present and possible uses of copper and brass and the relation of these metals to other metals and materials has been undertaken.

Realizing that copper, brass and copper products generally play a very important part in the commercial and domestic life of the country it is the desire of the committee ultimately to acquaint every community in the United States with the merits of these metals, and any suggestions or ideas you may have on the most thorough and effective manner of accomplishing this result will be welcome.

In order to obtain comprehensive data, the Copper and Brass Research Committee is sending out the following questionnaire with the request that it be given careful and prompt attention:

1—Is copper used for roofing, flashings, cornices, gutters, down pipes or any general building purposes in your town?

2—If so, has it given satisfactory service?

3—If not, what metal or material is used for these purposes and what has been your experience with these metals or materials?

4—Is brass used for plumbing or any other purpose in your town?

5—If so, has it given satisfactory service?

6—If not, what metals are used for plumbing and what has been your experience with them?

7—Is copper in use in your town for kitchen utensils and if so, has its use fallen off or increased in the last ten years?

8—What other materials are used in kitchen utensils in your town?

9—What has been the experience of housewives with these other materials?

10—Is any special effort made either by manufacturers or retailers to boom copper and brass products in your town?

11—Does a general need exist in your town for any one thing not now obtainable or obtainable only in inferior quality, which can be manufactured of copper and brass; metals having everlasting life and non-rust qualities? If so, name it.

12—What other use or uses can you suggest for copper and brass in articles in which these metals are not now employed?

13—What methods are used by manufacturers and retailers in your community in the marketing and selling of kitchen utensils and other articles named in Question No. 1, in which copper and brass may be used?

14—What explicit arguments would you suggest as most effective to increase the individual use of copper and brass kitchen utensils, other household articles and building materials?

15—Do you believe that an advertising campaign exploiting the merits of copper and brass would promote the interests of these metals in your vicinity?

16—Town?

17—State?

18—Population of town?

Anything which increases the use of sheet metal or enlarges the scope of the sheet metal trade is certain to be of advantage to every one engaged in the industry. Therefore, it will be to the ultimate benefit of sheet metal contractors to keep in touch with the work of the Copper and Brass Research Committee and to lend the support of their endorsement to the purposes which animate the Committee.

WITHSTANDS FORCES OF CORROSION.

The most common objection to the work of sheet metal contractors by house owners is the corroding or the rusting of the metal they use. Especially is this true in the case of troughs and kindred articles. Being placed in positions where the elements of weather can get at them, such articles must be strongly made in order to give long service. To avoid corrosion of sheet metal used in this respect there must be certain materials in its manufacture. Ordinary sheet metal will not do. It rusts too easily. If a job is completed without using reliable products, no matter how good the work itself may be, it will not give satisfaction. The house owner will judge the job by the service it gives. Not all eaves troughs sold will resist rust and corrosion. In fact, some of them are made of ordinary sheet metal. However, declares the Clark-Smith Hardware Company, Peoria, Illinois, manufacturers of the Galvanized and Corrugated Expanding Conductor, illustrated herewith, will resist rust and corrosion. It is made of Keystone Copper Bearing Steel. This material is the result of a great amount of chemical experimentation. Besides resisting the natural elements, the product depicted herewith, will bear wear and heavy strain, declare the makers. A service of long and satisfactory endurance will be had by the use of it. Its list of commendable attributes does not add to its price, say the manufacturers. The cost is the same as that of other makes of the same article. The Clark-Smith Hardware Company also manufactures a standard line of tinnings' tools and supplies. A communication to the Clark-Smith Hardware Company, Peoria, Illinois, concerning its products will receive prompt and satisfactory attention.

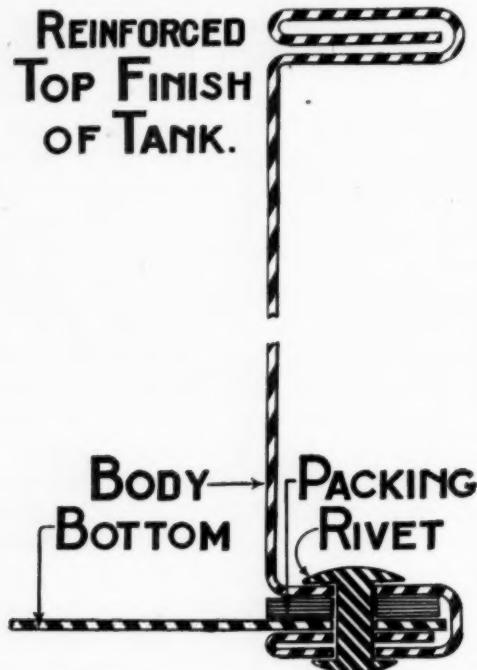
Galvanized
Eave
Trough
and Cor-
rugated
Expand-
ing Con-
ductors,
Made by
the Clark-
Smith
Hardware
Company,
Peoria,
Illinois.

The Eureka Solder Company of Racine, Wisconsin, has been incorporated with a capital stock of \$50,000 to make lead products.

National Sheet Metal Works has been chartered with a capital of \$12,000 at Grand Rapids, Michigan, by Cornelius J. Heybon and others.

BUCKEYE TANK HAS REINFORCED TOP.

A familiar proverb may justly be modified and applied to the making of galvanized steel tanks and troughs by saying that a tank is no stronger than its seams. What is probably the most effective selling argument in merchandising the standard steel tanks manufactured under the general trade name of "Buckeye" by the Thomas and Armstrong Company, London, Ohio, is that all the tanks are reinforced at the top and have waterproof packed joint at the bottom and side seam, as clearly shown in the accompanying illustration. An advantage to the



Showing Reinforced Top and Packing Rivet of Buckeye Tank, Made by The Thomas and Armstrong Company, London, Ohio.

dealer who buys an assortment of "Buckeye" tanks is that they can be shipped nested, thus saving a considerable percentage of the freight charges. Also, this convenient arrangement saves almost one-half the storage room. Details regarding the "Buckeye" galvanized steel tanks and troughs as well as other specialties made by the Company can be obtained by writing to the Thomas and Armstrong Company, London, Ohio.

ENTER THE AGE OF COOPERATION.

The past has been an age of marvelous mechanical invention, and there is no telling what secrets science may yet reveal to us, but the age to come is fundamentally one when industry must be humanized; machinery second, man first will ever henceforth be the rule. Let us therefore individually try to make our best contribution to this new social order when spiritual values will be first and men will be bound together by the only ties which last—friendship, cooperation and good will.

NOTES AND QUERIES.

Address of Kinnear and Gager.
From Neosho Plumbing, Heating and Manufacturing Company, Neosho, Missouri.

Please give us the address of the Kinnear and Gager Manufacturing Company, makers of metal ceilings.

Ans.—The Kinnear and Gager Manufacturing Company has been purchased by F. O. Schoedinger, of Columbus, Ohio, who has taken over their entire company.

Galvanized Hoop Iron.

From Neosho Plumbing, Heating and Manufacturing Company, Neosho, Missouri.

Can you tell us where we can purchase 22x1 inch galvanized hoop iron in circles, also 14x5/8 inch black hoop iron in circles?

Ans.—Carnegie Steel Company, Carnegie Building, Pittsburgh, Pennsylvania; Sharon Steel Hoop Company, Sharon, Pennsylvania; Edward L. Soule Company, Rialto Building, San Francisco, California.

Horan Gutter Hangers.

From J. H. Barnett's Sheet Metal Works, 312 West Front Street, Dodge City, Kansas.

Where can I buy the Horan gutter hangers?

Ans.—Horan Stay Hanger Company, 1932 West Jefferson Street, Louisville, Kentucky.

King Lawn Mower.

From L. J. Doherty and Company, Coleman, Michigan.

We would like to know who manufactures the King lawn mower.

Ans.—Dille and McGuire Manufacturing Company, Richmond, Indiana.

Aluminum Sheets.

From C. V. Brokenicky, Blue Rapids, Kansas.

Please advise where I can buy aluminum sheets.

Ans.—Metal Products Company, 100 South Jefferson Street, Chicago, Illinois.

Window Latch.

From Jaccard Jewelry Company, 1017 Walnut Street, Kansas City, Missouri.

Can you advise me the name and address of the manufacturer of the window latch, photograph of which is enclosed?

Ans.—Bullard and Gormley Company, 54 East Lake Street, Chicago, Illinois, can probably supply you.

Galvanized Nails.

From Charles F. Scott, Memphis, Texas.

Where can I purchase galvanized nails?

Ans.—American Steel and Wire Company, 208 South LaSalle Street, Chicago, Illinois; Keystone Steel and Wire Company, Peoria, Illinois; Pittsburgh Steel Company, 5th Avenue and Grant Street, Pittsburgh, Pennsylvania.

Rivets Galvanized.

From Charles F. Scott, Memphis, Texas.

Kindly advise who manufactures galvanized rivets.

Ans.—Atlas Bolt and Screw Company, 1130 Ivanhoe Road, Cleveland, Ohio; Rockford Bolt Company, 60 Mill Street, Rockford, Illinois; Townsend Company, New Brighton, Pennsylvania.

Tin Cans and Boxes.

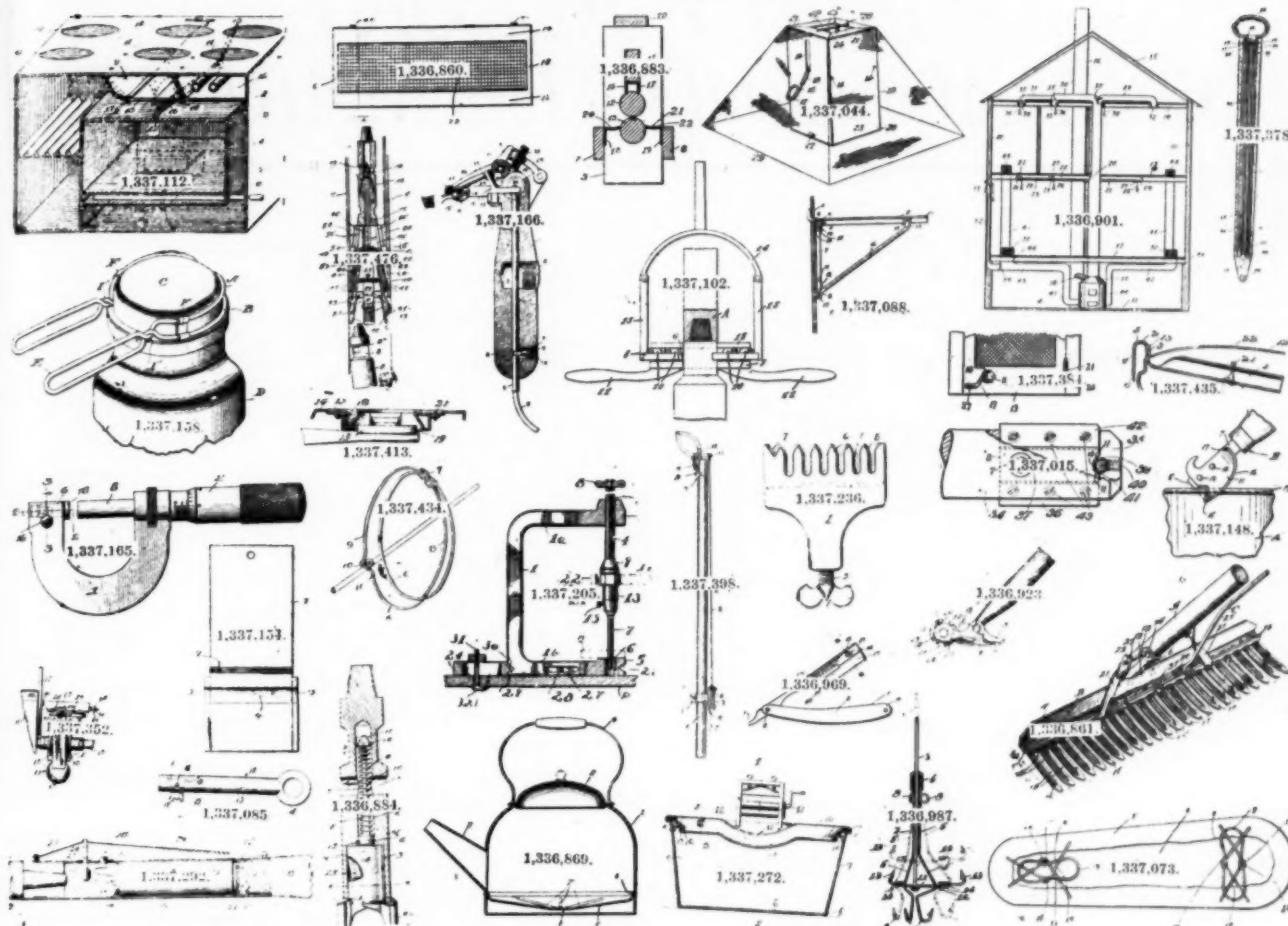
From Al Sharp, Montezuma, Indiana.

Please tell me who make tin cans and boxes such as are used for grease, baking powder, etc.

Ans.—American Can Company, 104 South Michigan Avenue, Chicago, Illinois; National Can Company, Detroit, Michigan; St. Louis Tin and Sheet Metal Working Company, St. Louis, Missouri.

A. H. Stokes Manufacturing Company has been incorporated at St. Johns, Michigan, with \$10,000 capital, by William J. Moss and others to manufacture sheet metal parts and stampings.

NEW PATENTS.



1,336,860. Humidifier. Harry F. Reid, Minneapolis, Minn. Filed March 20, 1919.

1,336,861. Dandelion-Rake. Charles E. Roberts, Oak Park, Ill. Filed June 18, 1915.

1,336,869. Kettle. Antonio T. Timosci, San Jose, Calif. Filed Aug. 26, 1919.

1,336,883. Clothes-Wringer. Charles F. Bronner, Syracuse, N. Y. Filed Sept. 11, 1919.

1,336,884. Underreamer. Harry E. Brown, Wichita, Kans. Filed Sept. 14, 1918. Renewed Nov. 28, 1919.

1,336,901. Hot-Air Heating System. Daniel Handelan, Aberdeen, S. D. Filed Oct. 31, 1917.

1,336,923. Safety-Razor. Alvah C. Roebuck, Evans-ton, Ill. Filed Nov. 11, 1918.

1,336,969. Safety-Razor. Barney La Rock, Kansas City, Mo. Filed Feb. 15, 1918. Renewed March 8, 1920.

1,336,987. Fishhook. John O. Becvar, Chicago, Ill. Filed Jan. 13, 1919.

1,337,015. Boring and Reaming Tool. Christian F. Heinkel, Cleveland, Ohio. Filed Nov. 4, 1915.

1,337,044. Mouseshop. Daniel Cook, Lyman, Utah. Filed July 18, 1917. Serial No. 181,371. Renewed Dec. 13, 1919.

1,337,073. Ironing-Board Fastener. Walter C. Jackson, Denver, Colo. Filed Sept. 11, 1919.

1,337,085. Safety-Lock. Joseph B. Malys, East Youngs-town, Ohio. Filed Nov. 5, 1918.

1,337,088. Scaffold-Bracket. George F. Moore, Carman, Ill. Filed May 18, 1917.

1,337,102. Wrench. Willard L. Stover, Amarillo, Tex. Filed April 23, 1919.

1,337,112. Convertible Gas-Flue for Combination Gas and Coal Ranges. Edward C. Beers, Rochester, N. Y., assignor to Phillips & Clark Stove Co., Inc., Geneva, N. Y., a Corporation of New York. Filed March 10, 1919.

1,337,148. Can-Opener. Eugene O. Murmann, Glendale, Calif. Filed May 12, 1919.

1,337,154. Sharpener. George W. Phillips, Sawyer, Kans. Filed Feb. 14, 1919.

1,337,158. Jar-Cover Remover. Fred L. Reed, Syracuse, N. Y. Filed Nov. 20, 1919.

1,337,165. Caliper. Lewis D. Spence, East Providence, R. I., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I., a Corporation of Rhode Island. Filed March 1, 1919.

1,337,166. Safety-Razor. Justin Kay Toles, San Francisco, Calif. Filed March 8, 1918.

1,337,205. Hand Clamp and Drill Outfit. George Dingman, Flint, Mich. Filed April 23, 1919.

1,337,236. Wire-Scraping Tool. Alexander Lichtenstein, Brooklyn, N. Y. Filed Dec. 2, 1918.

1,337,272. Washtub. Everett B. Richmond, Hartford, Conn., assignor of one-half to Winfield V. Schnell, Wethersfield, Conn. Filed March 31, 1919.

1,337,292. Light Attachment for Fishing-Tackle. Edward J. Timmons, St. Louis, Mo. Filed May 26, 1919.

1,337,352. Work-Table for Grinding-Machines. Edward B. Gardner, Beloit, Wis., assignor to Badger Tool Company, Beloit, Wis., a Corporation of Wisconsin. Filed Sept. 21, 1918.

1,337,378. Fishing-Rod. Mikolas Winskas, Easthampton, Mass. Filed Oct. 11, 1919.

1,337,384. Door-Opener. Earl E. Allen, Council Bluffs, Iowa. Filed Jan. 20, 1920.

1,337,398. Tree-Shaker. Luther Milton Fleckner, San Francisco, Calif. Filed Dec. 16, 1918.

1,337,413. Gas-Stove. Nicholas Schmitt, Brooklyn, N. Y. Filed May 6, 1919.

1,337,434. Clothespin. Bertha A. Bridges, Leesville, S. C. Filed Aug. 5, 1918.

1,337,435. Safety-Razor. Robert E. Brown, Olean, N. Y. Filed Aug. 14, 1919.

WEEKLY REPORT OF TRADE AND THE MARKETS

SITUATION IN THE STEEL INDUSTRY TAKES ON HOPEFUL ASPECT.

Considerable improvement in transportation conditions of the railroads serving the Pittsburgh region during the past week has resulted in a material increase in operation in the iron and steel industry. Several hundred strikers returned to work on the Pittsburgh and Lake Erie line and shipments of fuel and raw material so improved the stocks to producers that operations gained rapidly during the latter part of the week over the low point of 65 per cent reached the week before. On the other hand, the supply of cars is almost nil, and consumers are receiving very little as yet, and New York and New England consumers none at all.

Advices from different iron and steel producing districts throughout the country report rates of production varying with the situation of the railroads serving that section. At the beginning of the week operations in the Pittsburgh district were reported as almost normal, then they fell to between 65 and 70 per cent of capacity and with the return of some 600 of the strikers toward the close of the week, production again took a turn for the better. Coke is bringing the highest price since the coal miners' strike last fall, and production in Connellsville has been averaging 20 per cent of normal.

Operations in the Buffalo district are about 65 per cent of normal and shipments can not be effected unless plants are located on main railroad lines. Fuel is also hard to get into this region, but shipments are getting easier and all the open hearths and iron furnaces are in blast. Demand for structural steel has fallen off considerably, owing to the extreme high costs of building. Also the demand for plates and shapes is lighter, but has increased for bars.

Curtailment of mining operations on the Minnesota iron ranges is reported and shutdown at an early date will be necessary unless fuel shipments for the pumps are effected. The Hibbing district effected only half of its normal shipping last week, and in the Virginia district underground work and shovel operations have been cut to a minimum. As for the coal situation, output is on a 25 per cent basis and the country faces the greatest shortage in its history.

STEEL.

A reduction in the heavy premium asked for early deliveries of bars and plates was pointed to recently as a sign of a general lowering of prices, but this was the result of the existing irregularities in production and consumption of certain products in this case being a temporary increase in production over consumption, with the consequent result noted. In other lines, however, curtailment of

production is maintaining prices. This curtailment during the month of March amounted to 800,000 tons. The leading interest succeeded in operating at 80 per cent of normal and shipping at the rates of 60 per cent during the same period.

A sale of from 8,000 to 10,000 tons of sheet bars and 25,000 tons of re-rolling billets were placed in this country by England within the past month and the present inquiry for 10,000 tons of foundry iron per month for an indefinite period will probably be booked here, but is held up temporarily owing to the failure on the part of the purchaser to name exact specifications. However, this will be obviated as producers have cabled to England for these specifications.

COPPER.

The feature noteworthy factor last week in the domestic copper market was the appearance of signs of a seller's market. Suspension of blister copper shipments from the western smelters, consequent curtailment of production by the refineries, disappearance of consumers' stocks and closing of some of the brass works from lack of material, coupled with inroads made upon stocks made available by the export trade, augur well for a seller's market at the end of the railroad strike and with resumption of transportation. This situation has held the market steady at a time when little or no trading for domestic account is being done, producers maintaining their quotations of 19.25 cents for deliveries up to June, and 19.50 for third quarter deliveries and refusing to consider inquiries for far distant deliveries in anticipation of higher prices.

Large tonnages of copper were sold last week to French buyers on 4 months credit, with extension privileges, and over 10,000,000 pounds were shipped the latter half of the week. Total exports of copper so far this month are 17,336,640 pounds. The world is dependent now on America for 85 per cent of its copper, while domestic consumption is almost double that before the war, and consumption is considerably above production. Taking these points into consideration, plus the rapid depletion of war stocks and inability to raise the rate of production through scarcity of labor, a substantial raise in prices is expected.

TIN.

The tin market maintained a steady tone throughout the week just past, the low level of quotations to which it broke the preceding week in sympathy with the collapse of the London market and trading was brisk and heavy. Sales amounting to 975 tons were effected throughout the week, the market opening on Monday at 55.50 for spot Straits and closing at 55.75, while 99 per cent spot opened at 54.50, and closed at

the same price after an advance of 50 points. Futures in all positions advanced somewhat, but declined at the close of the week. The record sales of the year were effected on Friday of last week, when the amount sold totaled 425 tons, and on Tuesday of the preceding week, when the same amount was sold.

In the Chicago market, pig tin declined in price from 68½ cents per pound to 59 cents per pound, and bar tin from 70 cents to 61 cents per pound.

LEAD.

The lead market remained quiet and dull last week owing to the adverse traffic conditions making guaranteed deliveries impossible. The market shows little change, but less freedom on the part of sellers to offer futures down. The May situation is probably a fairly close one, although there were offers from producers of actual May shipment metal at the outside market price, East St. Louis basis.

The producers are reported to be receiving ore shipments more freely though traffic conditions are still bad with them as with every class of industry, and their coal receipts are far from satisfactory.

A decline has occurred in prices in the Chicago lead market. American pig lead has gone down from \$0.75 per 100 pounds to \$0.40 and bar lead from \$1.00 to \$0.65 per 100 pounds.

SOLDER.

No change in the prices of solder has taken place in the Chicago market. The present quotations are as follows: Warranted, 50-50, per pound, 41 cents; Commercial, 45-55, per pound, 38.30 cents; and Plumbers', per pound, 35.60 cents.

ZINC.

In the St. Louis market there is little demand for May shipment zinc. The attitude of sellers at present is firm, that of producers particularly so, who are for the most part quite off the market at the ruling basis. It is probable that their existing contracts will not in some cases carry them much farther, but the loss of output which they are suffering from the embargoes, in common with consumers, must be taken into account.

The position may be described as a deadlock at present, to which the traffic situation holds the key, and until demand and supply are again released by it the same condition bids fair to continue.

Zinc in slabs has declined in the Chicago market from 9 cents to 8.40 cents per pound.

TIN PLATE.

Nearly all the independent tin plate producers in the Central West are closed with the exception of those that manufacture their own steel, and operations in these are curtailed materially. The American Sheet & Tin Plate Co. have only succeeded in the past two weeks in raising their output from 22 to 40 per cent. This limited production of tin plate is having its effects on the consumer, and the American Can Co. has been forced to shut down.

As a consequence of this and the closing of similar factories, a shortage of tin cans exists throughout the

country that will greatly limit the canning of fruit and vegetables this season.

SHEETS.

Reports from Pittsburgh indicate that the sheet market is practically stagnant, there being hardly enough business done to set a market, but in general prices are unchanged, based on the asking prices of mills, except that prompt deliveries continue to show some declining tendency. Even the prompt delivery market is not being fully tested, as shipments even if made would not stand very good chances of getting through.

A rough guess would be that production of sheets is at about 60 per cent of capacity, but no close estimate can be made for conditions at the moment as most of the mills that have been working at all have been on a hand-to-mouth basis, and usually the management does not know at the beginning of the week what the week's average of operations is going to be.

There are varied reports as to the operations of consumers, some seeking to be getting along fairly well either with stocks or with current shipments, while others are closed or nearly closed. A striking feature of the situation is that but little complaint reaches the mills.

OLD METALS.

Wholesale quotations in the Chicago district which may be considered nominal are as follows: Old steel axles, \$33.00 to \$34.00; old iron axles, \$38.00 to \$39.00; steel spring, \$26.00 to \$27.00; No. 1 wrought iron, \$27.00 to \$28.00; No. 1 cast, \$36.00 to \$37.00; all net tons. Prices for non-ferrous metals are as follows, per pound: Light copper, 13 cents; light brass, 9 cents; lead, 6½ cents; zinc, 5 cents; cast aluminum, 22½ cents.

PIG IRON.

Pig iron production in the South has been progressing very favorably, not having been affected by the strike and would have reached capacity only for a shortage in fuel. Iron production in the Birmingham district for April was 191,000 tons and for the first four months of the year, 783,000 tons. Shipping has been increased to a rate greater than production and stocks are dwindling fast. Some 55,000 tons were shipped out in April, which leaves only 70,000 tons in the district.

The Scandinavian countries are purchasing large tonnages of iron, from 6,000 to 8,000 tons being purchased in this country within the week. These countries prefer iron of a high phosphorus content, as they sell the slag for fertilizer. It is also easier to supply the Scandinavian countries than it is Germany, as they are inclined to accept whatever is in stock rather than hold out for material meeting their exact specifications. Italy has never purchased steel or semi-finished steel, but has been buying iron of all grades from this country in large quantities for the past month. Belgium is an active buyer and for the past two weeks has been receiving the last of an order for 56,000 tons of rerolling billets placed in this country some time ago.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS		LEAD.	AUGERS.	BEATERS.
PIG IRON.		American Pig..... \$ 9 40 Bar 9 65 Sheet.	Boring Machine..... 40@40&10% Irwin's 25% Carpenter's Nut..... 50%	Carpet. Per doz. No. 7 Tinned Spring Wire... \$1 10 No. 8 Spring Wire cop- ered 1 50 No. 9 Preston 1 75
BASIC	\$43 00	Full coils..... per 100 lbs. \$11 75 Cut coils..... per 100 lbs. 12 00		
Southern Fdy. No. 2	46 60			
Lake Sup. Charcoal..	57 50-60 50			
Malleable	43 50			
FIRST QUALITY BRIGHT TIN PLATES.	Per box			
IC 14x20.... 112 sheets	\$15 80			
IX 14x20.....	17 75			
IXX 14x20.....	19 45			
IXXX 14x20.....	20 90			
IXXXX 14x20.....	22 15			
IC 20x28.....	31 60			
IX 20x28.....	35 50			
IXX 20x28.....	38 90			
IXXX 20x28.....	41 80			
IXXXX 20x28.....	44 30			
COKE PLATES.				
Cokes, 180 lbs....	20x28 \$19 80			
Cokes, 200 lbs....	20x28 20 00			
Cokes, 214 lbs....	IC 20x28 20 70			
Cokes, 270 lbs....	IX 20x28 24 00			
BLUE ANNEALED SHEETS.				
No. 10..... per 100 lbs. \$5 27				
No. 12..... per 100 lbs. 5 32				
No. 14..... per 100 lbs. 5 37				
No. 16..... per 100 lbs. 5 45				
ONE PASS COLD ROLLED BLACK.				
No. 18-20..... per 100 lbs. \$7 80				
No. 22-24..... per 100 lbs. 7 85				
No. 26..... per 100 lbs. 7 90				
No. 27..... per 100 lbs. 7 95				
No. 28..... per 100 lbs. 8 00				
No. 29..... per 100 lbs. 8 10				
GALVANIZED.				
No. 16..... per 100 lbs. \$8 75				
No. 18-20..... per 100 lbs. 8 90				
No. 22-24..... per 100 lbs. 9 05				
No. 26..... per 100 lbs. 9 20				
No. 27..... per 100 lbs. 9 35				
No. 28..... per 100 lbs. 9 50				
No. 30..... per 100 lbs. 10 00				
WELLSVILLE POLISHED STEEL.				
No. 18-20..... per 100 lbs. \$9 65				
No. 22-24..... per 100 lbs. 9 75				
No. 26..... per 100 lbs. 9 85				
No. 27..... per 100 lbs. 9 95				
KEYSTONE HAMMERED POLISHED STEEL.				
Discontinued. New product will be announced later.				
BAR SOLDER				
Warranted,				
50-50..... per 100 lbs. \$41 00				
Commercial,				
45-55..... per 100 lbs. 33 30				
Plumbers' per 100 lbs. 35 60				
ZINC.				
In slabs.....	\$8 40			
SHEET ZINC.				
Cask lots	15c			
Less than cask lots....	15 1/2-15 1/2c			
COPPER.				
Board and Paper, up to				
1/16"	17c per lb.			
Copper Sheet, mill base....	29 1/2c			
ASBESTOS.				
ANVILS.				
Solid Wrought.... 23 & 23 1/2 per lb.				
ASBESTOS.				
Board and Paper, up to				
1/16"	17c per lb.			
Thicker	18c per lb.			
BALANCES, SPRING.				
Sight Spring.....	Net			
Straight	Net			
BARS, CROW.				
Pinch or Wedge Point,				
per cwt.....	\$8 00 to \$9 00			
BASKETS.				
Clothes.				
Small Willow.... per doz. 15 00				
Medium Willow... "	17 00			
Large Willow.... "	20 00			
Galvanized	1 bu. 1 1/2 bu.			
Per doz.....	\$16 08 \$18 72			
BEATERS.				
Carpet.	Per doz.			
No. 7 Tinned Spring Wire... \$1 10				
No. 8 Spring Wire cop- ered	1 50			
No. 9 Preston	1 75			
Egg.	Per doz.			
No. 50 Imp. Dover..... \$1 10				
No. 102 " " Tinned 1 35				
No. 150 " " hotel. 2 10				
No. 10 Heavy hotel tinned 2 10				
No. 13 " " " 3 30				
No. 15 " " " 3 60				
No. 18 " " " 4 50				
Hand	8 9 10 12			
Per doz. \$11 50 13 00 14 75 13 00				
Moulder's.	12-inch	Per doz. 20 00		
HARDWARE				
ADZES.				
Carpenters'.				
Plumbs	Net			
Coopers'.				
Barton's	Net			
White's	Net			
Railroad.				
Plumbs	Net			
AMMUNITION.				
Shells, Loaded, Peters.				
Loaded with Black Powder,				
..... Less 18%				
Loaded with Smokeless Powder, medium grades,				
..... Less 18%				
Loaded with Smokeless Powder, high grade, Less 18%				
Winchester.				
Smokeless Repeater Grade,				
..... Less 15%				
Smokeless Leader Grade				
..... Less 15%				
Black Powder..... Less 15%				
U. M. C.				
Nitro Club..... 18%				
Arrow	18%			
New Club..... 18%				
Gun Wads—per 1000.				
Winchester 7-8 gauge 10&7 1/2%				
" 9-10 gauge 10&7 1/2%				
" 11-28 gauge 10&7 1/2%				
Powder	Each			
DuPont's Sporting, kegs... \$11 25				
" " 1/4 kegs 3 10				
DuPont's Canisters, 1-lb... 56				
" Smokeless, drums 43 50				
" " kegs... 22 00				
" " 1/4 kegs... 5 75				
" " canisters 1 00				
Hercules "E.C." and "Infallible", 50 can drums. 43 50				
Hercules "E.C.", kegs.... 22 50				
Hercules "E.C.", 1/2-kegs... 11 25				
Hercules "Infallible", 25-can drums..... 22 00				
Hercules "Infallible," 10 can drums..... 9 00				
Hercules "E.C.", 1/4-kegs... 5 75				
Hercules "E.C." and "Infallible", canisters	1 00			
Hercules W. A. .30 Cal. Rifle, canisters	1 25			
Hercules Lightning Rifle, canisters	1 25			
Hercules Sharpshooter Rifle, canisters	1 25			
Hercules Unique Rifle, canisters	1 50			
Hercules Bullseye Revolver, canisters	1 00			
ANVILS.				
Solid Wrought.... 23 & 23 1/2 per lb.				
ASBESTOS.				
Board and Paper, up to				
1/16"	17c per lb.			
Thicker	18c per lb.			
BALANCES, SPRING.				
Sight Spring.....	Net			
Straight	Net			
BARS, CROW.				
Pinch or Wedge Point,				
per cwt.....	\$8 00 to \$9 00			
BASKETS.				
Clothes.				
Small Willow.... per doz. 15 00				
Medium Willow... "	17 00			
Large Willow.... "	20 00			
Galvanized	1 bu. 1 1/2 bu.			
Per doz.....	\$16 08 \$18 72			
BEATERS.				
Carpet.	Per doz.			
No. 7 Tinned Spring Wire... \$1 10				
No. 8 Spring Wire cop- ered	1 50			
No. 9 Preston	1 75			
Egg.	Per doz.			
No. 50 Imp. Dover..... \$1 10				
No. 102 " " Tinned 1 35				
No. 150 " " hotel. 2 10				
No. 10 Heavy hotel tinned 2 10				
No. 13 " " " 3 30				
No. 15 " " " 3 60				
No. 18 " " " 4 50				
Hand	8 9 10 12			
Per doz. \$11 50 13 00 14 75 13 00				
Moulder's.	12-inch	Per doz. 20 00		
HARDWARE				
ADZES.				
Carpenters'.				
Plumbs	Net			
Coopers'.				
Barton's	Net			
White's	Net			
Railroad.				
Plumbs	Net			
AMMUNITION.				
Shells, Loaded, Peters.				
Loaded with Black Powder,				
..... Less 18%				
Loaded with Smokeless Powder, medium grades,				
..... Less 18%				
Loaded with Smokeless Powder, high grade, Less 18%				
Winchester.				
Smokeless Repeater Grade,				
..... Less 15%				
Smokeless Leader Grade				
..... Less 15%				
Black Powder..... Less 15%				
U. M. C.				
Nitro Club..... 18%				
Arrow	18%			
New Club..... 18%				
Gun Wads—per 1000.				
Winchester 7-8 gauge 10&7 1/2%				
" 9-10 gauge 10&7 1/2%				
" 11-28 gauge 10&7 1/2%				
Single Blitted (without handles).				
Plumbs, West, Pat..... List				
" Can. Pat..... \$69 00				
Firemen's (handled), per doz. 21 00				
Double Blitted (without handles).				
Warren's Natl. Blue, 3 1/2 to 4 1/2 lb.. Prices on application				
The above prices on axes of 3 to 4 lbs. are the base prices.				
BALANCES, SPRING.				
Sight Spring.....	Net			
Straight	Net			
BARS, CROW.				
Pinch or Wedge Point,				
per cwt.....	\$8 00 to \$9 00			
BASKETS.				
Clothes.				
Small Willow.... per doz. 15 00				
Medium Willow... "	17 00			
Large Willow.... "	20 00			
Galvanized	1 bu. 1 1/2 bu.			
Per doz.....	\$16 08 \$18 72			
BEATERS.				
Carpet.	Per doz.			
No. 18 Wheeler's	\$2 25			
No. 20 " " " 3 00				
American Snailhead	1 75			
" Rose " " 2 00				
" Flat.... " 1 40				
Mahew's Flat.... " 1 60				
" Snail.... " 1 90				
Dowel.				
Russell Jennings..... plus 20%				
Gimlet.				
Standard Double Cut Gross \$3 40				
Nail Metal Single Cut	Gross \$4 00—\$5 00			
Reamer.				
Standard Square.... Doz. 2 50				
American Octagon... " 2 50				
Screw Driver.				
No. 1 Common.....	40			
No. 26 Stanley.....	75			

BLACKING, STOVE. (See Polish)	Well. Oak, Wrought Iron Riveted Top Ears.....per doz. \$8 00	Picture Chains. Light Brass, 3 ft..per doz. \$1 25 Heavy Brass, 3 ft. " 1 75	Saw Fillers. Wentworth's, No. 1, \$12.50; No. 2, \$18.25; No. 3, \$16.25
BLADES, SAW.			
Butchers'. Standard, 3/4 & 1 1/4-in....Nets	BURRS, RIVETING. Copper Burrs only...25% above list Tinners' Iron Burrs only....30%	Sash Chain. (Morton's) Steel, per 100 ft. 0.....\$2 50 2.....3 10 1.....3 60	CLAWS, TACK. Wood hdl. No. 10....per doz. \$0 95 Forged steel, wood hdl. " 1 75 Solid steel..... " 2 40 Giant..... " 50
Hack.			
Atkins.....5% Star.....Nets	BUTTS. Cast Iron.....7 1/2% Wrought Brass (New List) Plus 5% Wrought Steel, Bright.....40% Wrought Steel, Japanned,Net Prices	Champion Metal. 0R.....5 40 2R.....5 60 1R.....7 75	CLEANERS.
Wood. Dibston Nos. 6 66 26 \$8 00 \$8 50 \$8 00		Champion Metal.—Extra Heavy. 1H.....9 50	Drain. Iwan's Adjustable.....25% Iwan's Stationary.....30%
Atkins Nos. 2 14 18 \$3 85 \$6 50 \$4 75		Cable Sash Chains. Steel.....List Net Plus 15%	Pot. Wireper doz. \$0 75
BLOCKS.			
Wooden20% Patent20%	CALIPERS. DoubleNets Inside and Outside....." Wing	CHALK, CARPENTERS'. Blueper gro., \$1 40 Red1 40 White1 25 Common White School Crayon	Side-Walk. Steel.....per doz., Net prices
BOARDS.			
Stove. Wabash Crystal.....Net Prices Wabash Art Inlay, " " Wabash Embossed, "	CALKS. Logger's Boot. (Lufkin R. Co.'s), per M..\$7 00	CHIMNEY TOPS. In bags.....per bag \$1 70	CLEAVERS.
Wash. No. 760, Banner Globe, (single)per doz. \$5 25 No. 652, Banner Globe, (single)per doz. 6 75 No. 801, Brass King per doz. 8 25 No. 860, Single—Plain Pump6 25	Toe. Blunt and medium, 1 prong, per 100 lbs.....\$6 20 Sharp, 1 prong, per 100 lbs 6 70	CHECKS, DOOR. Corbin.....Net List Russwin.....20%	CLEVISES. Malleable10c lb.
BOLTS.			
Carriage, Machine, etc. Carriage, cut thread, 5/16 and sizes smaller and shorter40&10% Carriage, sizes larger and longer than 5/1620% Machine, 5/16 and sizes smaller and shorter, 50&10% Machine, sizes larger and longer than 5/1615% Stove70% Tire60%	CANS. Milk. Elgin. Gals....5 8 10 Each\$4 00 \$5 15 \$5 15 Iowa Patterns. Gals....5 8 10 Each\$4 00 \$5 15 \$5 15	CHECKS, DOOR. Iwan's Volcano.....35%	CLIPPERS. Bolt\$2 25&6 00
Barrel. CastNets Wrought" Wrought, bronzed	CAN OPENERS. See Openers.	CHISELS.	CLIPS.
Flush. Wrought		Box. Inches.....12 14 Round, per doz....\$5 25 5 75 Flat, per doz.....7 25 8 25	Axle65&5%
Spring. Wrought" Wrought, heavy....."		CAPS, GUN.	Damper. Standardper doz. 70c Troy" 38c
Square. Wrought		CARPET STRETCHERS. See Stretchers.	Name" 50c
BORERS.			
Angular. Miller's Falls....per doz. \$23 00 Sill borers, No. 51 " 34 00 " 52 " 39 50	CARRIERS.	CHOPPERS, SEE CUTTERS, MEAT.	CLOTH.
Bung. Enterprise Mfg. Co.'s No. 1, 10% " No. 2, 10%	Hay. Diamond, Regular...each, Nets Diamond, Sling"	CHUCKS, DRILL.	Emery. StarNew Prices B. & A.
BOXES.			
Mail, No. 2 4 10 Per doz....\$18 00 23 00 29 00	CARTRIDGES. See Ammunition.	GOODELL'S, FOR SCREW DRIVERS. Diamond, Regular...each, Nets Diamond, Sling"	Hardware Wire— Prices on Full rolls (100 ft.) application 12 Mesh, galvanized" 14""" 16""" 18"""
Mitre. Stanley'sNet Prices Stearns, No. 2...per doz. \$30 00		YANKEE, FOR SCREW DRIVERS. Diamond, Regular...each, Nets Diamond, Sling"	Screen Wire. Prices on application 12 mesh, painted, per 100 sq. ft.
BRACES.			
Fray's Genuine Spofford's20&10% Fray's No. 68\$7 50 " No. 0108 00	CASTERS. Standard—Ball Bearing,50&10% Bed	CHURNs.	COLLARS, STOVE PIPE.
BRACKETS. Wenzelmann's No. 1, per doz. sets.....\$18 00 Wenzelmann's No. 2, per doz. sets.....19 20	CATCHERS, GRASS. No. 160S, per doz....\$12 25 No. 165S, "14 01	ANTI-BENT WOOD. Gal.....5 7 10 Each\$3 90 4 60 4 85 Belle, Barrel65&7 1/2% Common Dash, " 1 Gal.....5 7 Per doz.17 00 19 00	LACQUERED. Inches 5 6 7 Fancy pattern, per doz....80c 85c \$1 15
CHAIN AND CHAINS.			
Breast Chains. Doubleslack ...doz. pairs, \$8 50 With Covert Snaps " 5 80 With Slide....." 5 00 Without Slide...." 4 60	CEMENT, FURNACE. American Seal, 5 lb. cans, net \$0 45 " 10 lb. cans, " 90 " 25 lb. cans, " 1 87 Pecora, 5 lb. cans....." 45 " 10 lb. cans, " 90 " 25 lb. cans, " 1 87	CLAMPS. Adjustable. Martin's30% No. 63, Screw20%	COMPASSES.
Hay Rack. Wenzelmann's No. 1, per doz. sets.....\$18 00 Wenzelmann's No. 2, per doz. sets.....19 20	CARTRIDGE MAKERS'. 2 1/2"per doz. \$7 00 5"" 14 00 8"" 28 00 12"" 46 00	Cabinet. Screw20%	Carpenters'.15%
BRIT. Wrought Steel.....40%	Quilt Frame. No. 30 Ball and Socket, 2 1/2" head.....per gross \$11 25 No. 50, Ball and Socket, 3 1/2" head.....per gross 12 25	CARPENTERS'. Steel Bar...List price plus 25%	COPPER—See Metals.
BRACKETS.			
Hose. Sherman's, brass, 3/4", per doz.48c	Hose. Doubleslack ...doz. pairs, \$8 50 With Covert Snaps " 5 80 With Slide....." 5 00 Without Slide...." 4 60	SASH. Sampson Spot, No. 7, per doz.\$24 50 Sampson Spot, No. 7, per doz.\$29 40	CORKSCREWS.
BRACKETS. Wrought Steel.....40%	BREAST CHAINS.	COTTERS, SPRING. All sizes.....87 1/2%	COUPLINGS, HOSE.
BRACKETS. Wenzelmann's No. 1, per doz. sets.....\$18 00 Wenzelmann's No. 2, per doz. sets.....19 20		COVERS, WAGON—See Tents.	BRASSper doz. \$2 25
BRACKETS. Wrought Steel.....40%		CRADLES, GRAIN.	Morgan's Grapevine per doz. \$45 00

CRAYONS —See Chalk.		ELBOWS —Conductor Pipe.		Wood Pails .		HANGERS .	
CUTTERS .		Galvanized Steel, Tin and Terne, Round Corrugated.		Frazer's, 15lb \$1.00; 25lb \$1.50 each.		Barn Door .	
Glass.		Size.		U. S. Roller Bearing 12 1/2%		U. S. Roller Bearing 12 1/2%	
Woodward 40%		Doz.		Matchless 12 1/2%		Matchless 12 1/2%	
Meat.		2-inch .50%		Warehouse Tandem, No. 44 33 1/2%		Warehouse Tandem, No. 44 33 1/2%	
Enterprise—Nos. 5 10 12		3-inch .50%		Tin Cans .		Conductor P.	
Each.... \$2 50 \$4 25 \$3 75		4-inch .50%		Frazer's 1 1/2 lb. per doz. \$1.75		Iwan's Perfection 45%	
Nos. 22 32		5-inch .50%		3 lb. per doz. 3.25		Eave Trough .	
" 6 50 8 50		6-inch .50%		All sizes, 5" or smaller, per gross \$3.80 Net		All sizes, larger than 5", per gross, 5.00 "	
Pipe.		EMERY, TURKISH.		GRINDSTONES .		Garage Door .	
Saunders', No. 1 2 3		Size.....1-lb. 5-lb. 10-lb.		Family .		Right Angle 50 1/2%	
Each.... \$1 85 2 75 6 75		Per pound...18c 14c 13c		20 50 21 75 26 25 30 50		Sliding Folding 50%	
Slaw and Kraut. Per doz.		EYES.		Receding 50%		Receding 50%	
4-knife Kraut....\$20 00-55 00		Bright Wire Screw—See Woods, B. W.		Loose.		Parlor Door .	
3-knife Kraut, 8x27 in.13 00-18 00		Drifting Pick 60, 10 & 5%		Per ton Price on application		Acme per set, 53 75	
1-knife Slaw2 50		Hooks and Eyes —		Mounted.		Ives' Improved 3 40	
2-knife Slaw3 00		Brass, 1 1/2" No. 60, per gross \$3.50		Ball Bearing 1 2 3		Lane's Standard 3 50	
Washer11 00		Iron, 1 1/2" No. 60, per gross 1.60		Each....\$4.75 5.00 5.25		Lane's New Model 3 10	
DAMPERS, STOVE PIPE.		FASTENERS, STORM SASH.		GUN WADS.		Le Roy Noiseless 40 1/2%	
Ideal		Shroeder's....per doz. \$1.50		(See Ammunition)		Richards 25%	
3"....\$1 00		FILES AND RASPS.		Advance 40 1/2%		Advance 40 1/2%	
4"....1 05		Delta 30%		GUNS.		HASPS.	
5"....1 15		Swiss List plus 25%		Iver Johnson Champion Single Barrel Shot Guns...Net Prices		Hinge, Wrought, Add 50% to list With Staples—See Staples.	
6"....1 25		Utility " net.		Double Barrel, Hammerless "		HATCHETS.	
7"....2 20		HAFTS, AWL.		Iver Johnson Champion Single Barrel Shot Guns...Net Prices		Crescent 50%	
8"....3 75		Delta 30%		Double Barrel, Hammerless "		Cast Claw per doz. \$1.50 @ 1.85	
10"....6 00		Swiss List plus 25%		Iver Johnson Champion Single Barrel Shot Guns...Net Prices		Cast Shingling " 1.50 @ 1.85	
DIES AND STOCKS		Utility " net.		Germantown 7 1/2%		Germantown 7 1/2%	
Discount....New List		HAFTS, AWL.		HAY KNIVES.		HAY RACK BRACKETS.	
DIGGERS		Barrel .		See Knives.		Wenzleman's No. 1 per doz. sets, \$18.00	
Post Hole		Common per doz. \$0.35		Great Western 50-10-7 1/2%		Wenzleman's No. 2 per doz. sets, 19.20	
Eureka....per doz. \$14.50		Brade.		Kearney & Foot 50-10-7 1/2%		HAY RACK BRACKETS.	
Iwan's Split Handle (Eureka)		Arcade 50-10-7 1/2%		McClellan 50-10-7 1/2%		Wenzleman's No. 1 per doz. sets, \$18.00	
4-ft. Handle....per doz. 15.00		Black Diamond 50&5%		Nicholson brand 50&7 1/2%		Wenzleman's No. 2 per doz. sets, 19.20	
7-ft. "....per doz. 20.00		Eagle 50-10-7 1/2%		J. Barton Smith 50&2 1/2%		HINGES.	
Iwan's Perfection (Atlas) per doz.16.50		Great Western 50-10-7 1/2%		X-F Swiss Pattern Net List		Clark's Gravity	
Iwan's Hercules pattern per doz.18.00		Kearney & Foot 50-10-7 1/2%		Simonds' 50%		No. 1 per doz. sets, \$2.25	
See also Augers—Post Hole.		McClellan 50-10-7 1/2%		Disston's 50&10%		No. 2 " " 5.75	
Dividers, Wing25%		Nicholson brand 50&7 1/2%		Heller's 60&10%		Gate.	
DOOR CHECKS —See Checks		Tinners' Riveting 50-10-7 1/2%		Blacksmiths, Hand, No. 0 26 oz. \$1.35		Clark's 1 2 3	
DOORS, SCREEN		Barley Steel, new list....New Prices		Farringers' 26 oz. 1.35		Hgs & Litch, dz. \$5.50 7.00 9.75	
5/8-in. 4-panel, painted Net Prices		Hay 2-time....New prices		Farriers' 7 oz. 1.41		Hinges only 4.75 5.50 8.00	
1 1/8-in. 4-panel, painted "		3- " " New prices		Machinists' 7 oz. 1.06		Latches only 1.99 1.29 ...	
1 1/2-in. 3-panel, natural pine, fancy "		4- " " New prices		Nail Vanadium, No. 41 1/2, 16 oz. each \$2.00		Screen Door.	
DOOR HANGERS —See Hangers		Digging....New prices		V. & B., No. 11 1/2, 16 oz. each 1.60		Cast Iron gross \$10.00	
DRILLS		Scoop....New prices		Garden City, No. 11 1/2, 16 oz. each 1.35		Steel 7.00	
Blacksmiths' Twist. (New List)40%		Header.		Tinner's Riveting, No. 1, 8 oz. each 1.10		Chicago Add 12 1/2% to list	
Breast.		3-time....New prices		Shoe, Steel, No. 1, 13 oz. each 1.00		Columbia Dbl. Acting 40 10&5%	
Millers Falls No. 12, each \$46.00		4- " " New prices		Tack Magnetic No. 5, each \$1.00		Gem 25%	
" " 112, " 26.00		Manure.		Hammers, Handled each, net.		Ideal Detachable, per gro. \$1.00	
Hand.		4-time....New prices		Hammers, Heavy and Sledges Under 5 lbs. 50%		Matchless 40%	
Goodell's Automatic.		White Mountain 1-quart....@		5 lbs. and over 50&10%		New Idea 40 10&5%	
Nos. 01 63		" 2 " " @		Masons' Single and Double Face 50%		Oxford 20%	
Per doz. 12.00 14.40		" 4 " " @		HANDLES.		Wrought Iron.	
Goodell's Single Gear, per doz.15.75		" 6 " " @		Auger Common Assorted per doz. \$0.75		New Lists	
Goodell-Pratt No. 4 1/2 per doz. list, less....30%		Arctic 1 " " @		Pratt's Adjustable, Nos. 1 & 2, per doz. 6.00		Light Strap Hinges 5&5%	
Goodell-Pratt No. 375 per doz. list, less....30%		" 2 " " @		Ives' Adjustable per set, 1.35		Heavy Strap Hinges 20&7 1/2%	
Reciprocating.		" 4 " " @		Axe 30%		Light T Hinges List plus 45%	
Goodell's....per doz. 26.00		" 6 " " @		Chisel Hickory, Tanged, Firmer, Assorted, 55c; Large, 85c per doz.		Heavy T Hinges List plus 45%	
DRIVERS, SCREW		GAUGES.		Hickory, Socket Firmer, Assorted, 70c; Large size, 80c per doz.		Extra Heavy T Hinges 15&5%	
Standard....Nets		Cream Pail. *		GLUE.		HOES.	
Lock Ferrule "		Fairmount....per doz. \$3.75		Bulky B Amber....per lb. 35c		Garden Net	
Champion...."		Marking, Mortise, etc....		A White....40c		Grub Extra New prices	
Champion Pattern...."		Wire....		H. S. Amber....32c		Hazel per doz. New prices	
Clark's Interchangeable...."		Discount....35@40%		GIMLETS.		Ladies' and Boys' New prices	
Edison...."		Wire....		Discount....35@40%		Mortar New prices	
Reed's Lightning...."		GLUE.		Le Page's....37 1/2%		Planter's Eye New prices	
Goodell's Spiral...."		Bulky....		List "A"....33 1/2%		Weed New prices	
Yankee Ratchet...."		A White....40c		List "B"....33 1/2%		Hooks.	
" Spiral...."		H. S. Amber....32c		List "C"....25%		Awning No. 60....per gro. 50%	
EAVES, TROUGH		GREASE, AXLE.		DRIFTING PICK.		HOLES.	
50% off Standard List.		Army & Navy....40%		Drifting Pick 40%		Belt	
ELBOWS —Stove Pipe		Le Page's....		File, assorted, 30c; Large, 35c per doz.		Brown's 70&5%	
1-piece Corrugated, Uniform		List "A"....37 1/2%		Hammer Adze Eye....per doz. 40c to \$1.00		Jones' 55&5%	
Doz.		List "B"....33 1/2%		Blacksmiths' " 4			

Brix.				Standard.	LINING, STOVE.				NAIL PULLERS.							
Inch.....	5	7	10	12	Nos.....	1	2	Bricks.....	per crate, 42c							
Per doz...	\$2 50	2 75	3 25	3 85	Each.....	50	60	1 00								
Bush.				R-W.	LOCKS.				See Pullers.							
Common Axe Handle, per doz.				Big Lift.....	per doz.				NAIL SETS.							
Chain.				Tiger.....	40%				See Sets.							
Inch.....	1 1/2	2	3 1/2	4	Brass.....	15%				NETTING, POULTRY.						
Pr 100	\$7 60-8	10 9	75	11 50	Cauldron.....	40&5%				Galvanized before weaving.....	50%					
Clothes Line.				Copper.....	per lb. 27				Galvanized after weaving.....	45%						
Japaned.....	per doz.			Mashin.....	40&10%				NIPPERS.							
Galvanized.....	75c @ 2 50			Sugar.....	50%				End Cutting.							
Coal and Hat.				KETTLES.				Stubb's Pattern, Inches.	5	6						
Common Wire.....	per gro. 1 25-1 65			KNIVES.				Per dozen.....	\$4 65	6 7 5						
Conductor.				Beet Topping.	Clyde, 9-in. Scimiter Blade, dz. \$3 85				End and Diagonal Cutting.							
Iwan's Tinned Sickle.....	List.			California.....	3 40				Swedish Side. Inches.	5	6					
Corn.				Butcher.	Per doz.				Per dozen.....	\$4 50	5 7 5					
Common, riveted, painted	red.....			Beechwood Handles, 6" blade.....	\$4 00				Hoof.							
red.....	per doz. Nets			" 7".....	4 65				Heller's.....	40&10%						
Little Giant.....	" "			" 8".....	5 65				V. & B., No. 52, each.....	\$2 25						
Gate.				Cooper's Hoop.....	15%				NOZZLES.							
See Goods, Bright Wire.				Corn.				Clipper.....	Magic.....							
Grass.				Clipper.....	per doz. \$1 75				Diamond.....	per doz. \$9 50						
Common Nos. 1	3	5	7	Disston's.....	2 75				" "							
Per doz...	\$4 50	3 50	3 75	Earle's.....	3 00				NUTS, HOT PRESSED.							
Hammock.				Woodford.....	2 25				Square Tapped.	\$1.85 off per 100 lbs.						
With plate.....	per doz. 1 10			Drawing.				Hexagon Tapped.	\$1.85 off per 100 lbs.							
With screw.....	" 1 00			Standard.....	List&5%				NUTS, HOT PRESSED.							
Lambrequin, or Drapery, per gro.	30c			Adjustable.....	15%				MAFFERS.	NUTS, HOT PRESSED.						
Picture.....	50% @ 50&10%			Barton's Carpenters'.....	15%				Hickory.....	2 25						
Potato and Measure.				Hay.				Door.	National Rigid.....							
Brass.....	Nets			Iwan's Solid Socket.....	doz. \$13 00				Acme Steel Flexible.....	50%						
(See Goods, Bright Wire.)				Heath's.....	13 00				MATS.							
Seat Spring.				Iwan's Sick Edge.....	18 00				Stone.	No. 2.....						
HOSE, GARDEN.				Iwan's Impv'd Serrated.....	18 00				No. 1.....	per gro. Nets						
Per ft.				Hedge.				Door.	No. 1.....							
Guaranteed 3 ply 1/4 inch.....	16 c			Challenge.....	per doz. \$6 00				No. 1 Asbestos Toasters, or	Brass and Copper.....						
" 4 ply 1/4 inch.....	18 c			Disston's.....	3 75				wire-covered Stove Mats,	10%						
" 5 ply 1/4 inch.....	13 1/2 c			Mincing.				With handle.....	Zinc.....							
COTTON COV. RUBBER HOSE.				Common, Single.....	60				1 10	Engin'ers'.						
High Grade Apache 1" guar. press.				Common, Double.....	90				Tin.....	per doz. \$7 00 @ 9 00						
400 lbs.....	400			Streeter, 4-blade.....	1 30				Machine.	Common.....						
HUSKERS.				Streeter, 6-blade.....	2 00				Common.....	per doz. \$0 85						
IRON, PIG.				KNOBS.				OPENERS.								
See Metals.—First column.				Doors.	Plumbs.....				Box.	See Box Chisels						
IRON.				Common.	25%				Dan.	Delmonico.....						
Curling.....	per doz. \$4 40			Porphyry.....	Nets				Never Slip.....	per doz. \$1 30						
B.....	50			Mineral.....	Nets				Crates.	" "						
A.....	58			Porcelain.....	Nets				V. & B.....	" 7 25-11 00						
Princess.....	1 25			Jet.....	Nets				OUTPUTS, COBLING							
Thelma.....	1 25			LADDERS.				Combination.....								
Pinking.....	1 00			Common Lang.....	per doz. \$1 80				Economy.....	per doz. \$1 50						
Plane.				Per ft.....	17c @ 23c				Family.....	" 14 50						
Wood Bench.				Extension.....	Per doz. 17c @ 23c				PAILS.							
Sad.				Per ft.....	22 to 28				Cream.	14-qt., without gauge, per doz.						
Charcoal.....	per doz. \$11 00			Step.....	10				18-qt., " "	\$9 50						
Common, polished, per 100 lbs.	7 75			Common, per ft.....	13				20-qt., " "	11 00						
No. 70 Asbestos.....	\$1 50 net			Common, with Shelf, add 10c.	18				" "	11 75						
No. 100	1 75 net			JXL.....	34c				MILLS, COFFEE.							
Common, nickel plated.....	8 25			Challenge, 6 to 9 ft.....	55c				Enterprise.....	16 1/2%						
Mrs. Pott's,				10 to 16 ft.....	60c				Parker.....	50&5%						
No. 50 J.	Enterprise, per set, Nets			LEADERS, CATTLE.				Arcade.....								
No. 55 J.	" "			Common, per ft.....	23c				10-12%							
No. 50 T.	" "			Common, with Shelf, add 10c.	23c			18-qt., " "								
No. 55 T.	" "			JXL.....	34c			20-qt., " "								
Tailors' Sad.....	per lb			Challenge, 6 to 9 ft.....	55c			" "								
Tailors' Goose.....	" "			10ft. 60ft. 100ft. 120ft. 140ft. 160ft. 180ft. 200ft. 220ft. 240ft. 260ft. 280ft. 300ft. 320ft. 340ft. 360ft. 380ft. 400ft. 420ft. 440ft. 460ft. 480ft. 500ft. 520ft. 540ft. 560ft. 580ft. 600ft. 620ft. 640ft. 660ft. 680ft. 700ft. 720ft. 740ft. 760ft. 780ft. 800ft. 820ft. 840ft. 860ft. 880ft. 900ft. 920ft. 940ft. 960ft. 980ft. 1000ft. 1020ft. 1040ft. 1060ft. 1080ft. 1100ft. 1120ft. 1140ft. 1160ft. 1180ft. 1200ft. 1220ft. 1240ft. 1260ft. 1280ft. 1300ft. 1320ft. 1340ft. 1360ft. 1380ft. 1400ft. 1420ft. 1440ft. 1460ft. 1480ft. 1500ft. 1520ft. 1540ft. 1560ft. 1580ft. 1600ft. 1620ft. 1640ft. 1660ft. 1680ft. 1700ft. 1720ft. 1740ft. 1760ft. 1780ft. 1800ft. 1820ft. 1840ft. 1860ft. 1880ft. 1900ft. 1920ft. 1940ft. 1960ft. 1980ft. 2000ft. 2020ft. 2040ft. 2060ft. 2080ft. 2100ft. 2120ft. 2140ft. 2160ft. 2180ft. 2200ft. 2220ft. 2240ft. 2260ft. 2280ft. 2300ft. 2320ft. 2340ft. 2360ft. 2380ft. 2400ft. 2420ft. 2440ft. 2460ft. 2480ft. 2500ft. 2520ft. 2540ft. 2560ft. 2580ft. 2600ft. 2620ft. 2640ft. 2660ft. 2680ft. 2700ft. 2720ft. 2740ft. 2760ft. 2780ft. 2800ft. 2820ft. 2840ft. 2860ft. 2880ft. 2900ft. 2920ft. 2940ft. 2960ft. 2980ft. 3000ft. 3020ft. 3040ft. 3060ft. 3080ft. 3100ft. 3120ft. 3140ft. 3160ft. 3180ft. 3200ft. 3220ft. 3240ft. 3260ft. 3280ft. 3300ft. 3320ft. 3340ft. 3360ft. 3380ft. 3400ft. 3420ft. 3440ft. 3460ft. 3480ft. 3500ft. 3520ft. 3540ft. 3560ft. 3580ft. 3600ft. 3620ft. 3640ft. 3660ft. 3680ft. 3700ft. 3720ft. 3740ft. 3760ft. 3780ft. 3800ft. 3820ft. 3840ft. 3860ft. 3880ft. 3900ft. 3920ft. 3940ft. 3960ft. 3980ft. 4000ft. 4020ft. 4040ft. 4060ft. 4080ft. 4100ft. 4120ft. 4140ft. 4160ft. 4180ft. 4200ft. 4220ft. 4240ft. 4260ft. 4280ft. 4300ft. 4320ft. 4340ft. 4360ft. 4380ft. 4400ft. 4420ft. 4440ft. 4460ft. 4480ft. 4500ft. 4520ft. 4540ft. 4560ft. 4580ft. 4600ft. 4620ft. 4640ft. 4660ft. 4680ft. 4700ft. 4720ft. 4740ft. 4760ft. 4780ft. 4800ft. 4820ft. 4840ft. 4860ft. 4880ft. 4900ft. 4920ft. 4940ft. 4960ft. 4980ft. 5000ft. 5020ft. 5040ft. 5060ft. 5080ft. 5100ft. 5120ft. 5140ft. 5160ft. 5180ft. 5200ft. 5220ft. 5240ft. 5260ft. 5280ft. 5300ft. 5320ft. 5340ft. 5360ft. 5380ft. 5400ft. 5420ft. 5440ft. 5460ft. 5480ft. 5500ft. 5520ft. 5540ft. 5560ft. 5580ft. 5600ft. 5620ft. 5640ft. 5660ft. 5680ft. 5700ft. 5720ft. 5740ft. 5760ft. 5780ft. 5800ft. 5820ft. 5840ft. 5860ft. 5880ft. 5900ft. 5920ft. 5940ft. 5960ft. 5980ft. 6000ft. 6020ft. 6040ft. 6060ft. 6080ft. 6100ft. 6120ft. 6140ft. 6160ft. 6180ft. 6200ft. 6220ft. 6240ft. 6260ft. 6280ft. 6300ft. 6320ft. 6340ft. 6360ft. 6380ft. 6400ft. 6420ft. 6440ft. 6460ft. 6480ft. 6500ft. 6520ft. 6540ft. 6560ft. 6580ft. 6600ft. 6620ft. 6640ft. 6660ft. 6680ft. 6700ft. 6720ft. 6740ft. 6760ft. 6780ft. 6800ft. 6820ft. 6840ft. 6860ft. 6880ft. 6900ft. 6920ft. 6940ft. 6960ft. 6980ft. 7000ft. 7020ft. 7040ft. 7060ft. 7080ft. 7100ft. 7120ft. 7140ft. 7160ft. 7180ft. 7200ft. 7220ft. 7240ft. 7260ft. 7280ft. 7300ft. 7320ft. 7340ft. 7360ft. 7380ft. 7400ft. 7420ft. 7440ft. 7460ft. 7480ft. 7500ft. 7520ft. 7540ft. 7560ft. 7580ft. 7600ft. 7620ft. 7640ft. 7660ft. 7680ft. 7700ft. 7720ft. 7740ft. 7760ft. 7780ft. 7800ft. 7820ft. 7840ft. 7860ft. 7880ft. 7900ft. 7920ft. 7940ft. 7960ft. 7980ft. 8000ft. 8020ft. 8040ft. 8060ft. 8080ft. 8100ft. 8120ft. 8140ft. 8160ft. 8180ft. 8200ft. 8220ft. 8240ft. 8260ft. 8280ft. 8300ft. 8320ft. 8340ft. 8360ft. 8380ft. 8400ft. 8420ft. 8440ft. 8460ft. 8480ft. 8500ft. 8520ft. 8540ft. 8560ft. 8580ft. 8600ft. 8620ft. 8640ft. 8660ft. 8680ft. 8700ft. 8720ft. 8740ft. 8760ft. 8780ft. 8800ft. 8820ft. 8840ft. 8860ft. 8880ft. 8900ft. 8920ft. 8940ft. 8960ft. 8980ft. 9000ft. 9020ft. 9040ft. 9060ft. 9080ft. 9100ft. 9120ft. 9140ft. 9160ft. 9180ft. 9200ft. 9220ft. 9240ft. 9260ft. 9280ft. 9300ft. 9320ft. 9340ft. 9360ft. 9380ft. 9400ft. 9420ft. 9440ft. 9460ft. 9480ft. 9500ft. 9520ft. 9540ft. 9560ft. 9580ft. 9600ft. 9620ft. 9640ft. 9660ft. 9680ft. 9700ft. 9720ft. 9740ft. 9760ft. 9780ft. 9800ft. 9820ft. 9840ft. 9860ft. 9880ft. 9900ft. 9920ft. 9940ft. 9960ft. 9980ft. 10000ft. 10020ft. 10040ft. 10060ft. 10080ft. 10100ft. 10120ft. 10140ft. 10160ft. 10180ft. 10200ft. 10220ft. 10240ft. 10260ft. 10280ft. 10300ft. 10320ft. 10340ft. 10360ft. 10380ft. 10400ft. 10420ft. 10440ft. 10460ft. 10480ft. 10500ft. 10520ft. 10540ft. 10560ft. 10580ft. 1												

PARERS		TINNERS'.		PUNCHES.		SAWS.	
Apple.	per doz.	Net list	Conductors.	No. 22.....per doz.	\$3 00	Band.	E. C. Atkins & Co. Prices on applic'n
Goodell's.....	\$10 80	each, 10c	Machine.....per lb.	25	Disston's.....	Prices on applic'n	
Turntable.....	11 40		Saddlers'.	Common.....per doz.	1 50 to 5 00	Buck.	Prices on applic'n
White Mountain.....	8 40		Revolving Spring.	Stearns, No. 10.....per doz.	\$ 6 25	Disston's.....	Prices on applic'n
Reading, No. 78.....	11 40			" No. 40....."	12 00	Jackson's.....	New nets
Potato.				" No. 60....."	16 00	Butchers'.	E. C. Atkins & Co. Prices on applic'n
Goodsell's Saratoga, 10 $\frac{1}{2}$ in., dz.	6 50					Disston's.....	Prices on applic'n
Goodsell's Saratoga, 5 in., dz.	5 50					Hiles'.....	New nets
PICKS.						Circular.	E. C. Atkins & Co. Prices on applic'n
Adze Eye Ore.....	22 1/2%					Disston's.....	Prices on applic'n
Drifting and Poll Picks.....	22 1/2%					Compass.	E. C. Atkins & Co. Prices on applic'n
Plumbs, Railroad.....	22 1/2%					Disston's.....	Prices on applic'n
Surface.....	22 1/2%					Coping.	E. C. Atkins & Co. Prices on applic'n
PINCERS.						Disston's.....	Prices on applic'n
Carpenters', cast steel.						Cross-Cut.	E. C. Atkins & Co. Prices on applic'n
No. 6 8 10 12						Disston's.....	Prices on applic'n
Each. \$0.63 .80 1.05 1.15						Deboring.	E. C. Atkins & Co. Prices on applic'n
Blacksmiths'.....	45%					Disston's.....	Prices on applic'n
Heller's.....	40%					Flooring.	E. C. Atkins & Co. Prices on applic'n
PINS.						Disston's.....	Prices on applic'n
Clothes.						Hack.	E. C. Atkins & Co. Prices on applic'n
Common.....per box of 5 gro.	\$0 95					Hand & Rip.	E. C. Atkins & Co. Prices on applic'n
PICKET						Hand & Rip.	E. C. Atkins & Co. Prices on applic'n
Fluted, 15-in.....per doz.	\$1 10					Hay.	E. C. Atkins & Co. Prices on applic'n
Fluted, 21-in.....	" 1 60					Wood, 10 Teeth.....\$4 00	E. C. Atkins & Co. Prices on applic'n
Spiral.....	" 1 90					Lawn.	E. C. Atkins & Co. Prices on applic'n
PIPE.						20 Teeth.....per doz.	\$5 50
Conductor.						RASPS—See Files.	E. C. Atkins & Co. Prices on applic'n
Plain Round and Round Corrugated.						RAZORS—SAFETY.	Disston's.....Prices on applic'n
29 Gauge.....	50%					Gillette.....per doz.	\$45 00
28 "	40%					Auto Strop.....	45 00
26 "	30%					Gem.....	8 40
24 "	List.					Gem (3 doz. lots).....	8 00
Square Corrugated A and B and Octagon.						Ever Ready.....	8 40
29 Gauge.....	40%					Ever Ready (3 doz. lots).....	8 00
28 "	35%						
26 "	25%						
24 "	List.						
Galvanized Toncan Metal, Genuine O. H. Iron, Lyonore Metal, Charcoal Iron and Keystone C. B.							
Plain Round and Round Corrugated.							
28 Gauge.....	40%						
26 "	30%						
24 "	List.						
Square Corrugated A and B Polygon and Octagon.							
28 Gauge.....	35%						
26 "	25%						
24 "	List.						
14 and 16 oz. Copper, all designs. List.							
Portico Elbows.							
Galvanized and Terne Steel.							
1-inch.....	35%						
1 $\frac{1}{2}$ -inch.....	35%						
1 $\frac{1}{2}$ -inch.....	35%						
2-inch.....	35%						
Tubing.....	25%						
Discounts on Round apply on sizes 2 inch to 6 inch inclusive.							
Freight allowed on 15 dozen or more, to all points where freight rate does not exceed \$1.00 per 100 lbs. Less than 15 dozen F. O. B. Factory.							
Terms: 30 days net, 2% ten days.							
Standard Gauge Conductor Pipe, plain or corrugated.							
Not Nested.....	35-5%						
Nested solid.....	40%						
Steve.	Per 100						
29-Gauge, 3-inch.....	\$19 00	Joints					
" 4-inch.....	19 50						
" 5-inch.....	20 25						
" 6-inch.....	21 00						
" 7-inch.....	23 00						
T-Joint Made-up.							
6-inch.....per 100	\$6 00						
Furnace Pipe.							
Double Wall Pipe and Fittings.....	20%						
Single Wall Pipe, Round Pipe Fittings.....	15%						
Galv'an'd and Black Iron Pipe, Shoes, etc.....	15%						
PLANES.							
Stanley Iron Bench.....	net						
PLATES, TIN							
See Metals in Column 1.							
PLIERS.							
Giant, Button's—Nets							
Cutting.							
Bernard's.....	New Prices						
Lodi.....	New Prices						
Paragon.....	New Prices						
Fencing.							
Black Bull.....	All Nets						
Farmers' Choice.....	All Nets						
Russell's.....	All Nets						
Fold and Round Nose.							
Bernard's.....	New Prices						
Lodi.....	New Prices						
Paragon.....	New Prices						
POINTERS, SPOKE.							
Common.....	Nets						
Cook's.....	40%						
Davis' Iron.....	25%						
Davis' Inclinometer.....	15%						
POKERS, STOVE.							
Wr't Steel, str't or bent per doz.	\$0 75						
Nickel Plated, coil han'l's	" 1 10						
POLISH.							
Wizard, 6 oz.....per gross	\$18 00						
" 1 pt....."	20 40						
" 1 pt....."	36 00						
" 1 qt....."	6 00						
" 1 gal....."	10 80						
" 1 gal....."	18 60						
Metal.							
Store.	Per gross						
Black Eagle Paste 5 oz.....	\$13 80						
" " 1/2 lb.....	17 40						
" " 1 lb.....	31 20						
" " 5 lbs. per case.....	5 25						
Black Eagle Liquid, 6 oz. per gross.....	15 60						
Black Kid Paste, 5 lbs. per case.....	6 00						
Black Jack Liquid 1/2 pt. per gross.....	15 60						
Black Jack Paste #10 per gross.....	13 20						
FIRE POTS.							
Clayton & Lambert's, each \$4 00	@6 00						
Gate City.....each, 6 25							
Gem.....each, \$6 75	@8 50						
POWDER.							
See Ammunition.							
PRESSES, FRUIT AND JELLY.							
Enterprise Manufacturing Co....25%							
PRIMERS.							
See Ammunition.							
PRUNERS.							
Cork.							
Daisy.....each, \$3 10							
Phoenix....." 1 40							
Quick and Easy....." 2 70							
Giant.....per doz.	14 50						
Never-Slip....."	17 00						
PULLEYS.							
Awning—Jap'd.....10%							
Clothes Line.....10%							
Hay Fork.							
Iron Wheel, 5-in.....per doz.	2 50						
Wood Wheel, 6-in....."	2 65						
Wood Wheel, 6-in., pass knot,.....	3 00						
Sash.							
Common.....Net							
Common-Sense, 2-in.....Net							
Empire Pattern, 2-in.....Net							
Ideal.....Net							
Steel.....Net							
PUMPS.							
Pitcher Spout.							
Nos. 1 2 3 4							
Each.....Nets							
Spray.							
Midget Junior.....per doz.	3 75						
New Misty....." 6 00							
Crescent....." 6 50							
Fold and Round Nose.							
Bernard's.....	New Prices						
Lodi.....	New Prices						
Paragon.....	New Prices						
Fencing.							
Black Bull.....	All Nets						
Farmers' Choice.....	All Nets						
Russell's.....	All Nets						
PLATES, TIN							
See Metals in Column 1.							
PLIERS.							
Giant, Button's—Nets							
Cutting.							
Bernard's.....	New Prices						
Lodi.....	New Prices						
Paragon.....	New Prices						
Fencing.							
Black Bull.....	All Nets						
Farmers' Choice.....	All Nets						
Russell's.....	All Nets						
POINTERS, SPOKE.							
Common.....	Nets						
Cook's.....	40%						
Davis' Iron.....	25%						
Davis' Inclinometer.....	15%						
POKERS, STOVE.							
Wr't Steel, str't or bent per doz.	\$0 75						
Nickel Plated, coil han'l's	" 1 10						
POLISH.							
Wizard, 6 oz.....per gross	\$18 00						
" 1 pt....."	20 40						
" 1 pt....."	36 00						
" 1 qt....."	6 00						
" 1 gal....."	10 80						
" 1 gal....."	18 60						
Metal.							
Store.	Per gross						
Black Eagle Paste 5 oz.....	\$13 80						
" " 1/2 lb.....	17 40						
" " 1 lb.....	31 20						
" " 5 lbs. per case.....	5 25						
Black Eagle Liquid, 6 oz. per gross.....	15 60						
Black Kid Paste, 5 lbs. per case.....	6 00						
Black Jack Liquid 1/2 pt. per gross.....	15 60						
Black Jack Paste #10 per gross.....	13 20						
FIRE POTS.							
Clayton & Lambert's, each \$4 00	@6 00						
Gate City.....each, 6 25							
Gem.....each, \$6 75	@8 50						
POWDER.							
See Ammunition.							
PRESSES, FRUIT AND JELLY.							
Enterprise Manufacturing Co....25%							
PRIMERS.							
See Ammunition.							
PRUNERS.							
Cork.							
Daisy.....each, \$3 10							
Phoenix....." 1 40							
Quick and Easy....." 2 70							
Giant.....per doz.	14 50						
Never-Slip....."	17 00						
PULLEYS.							
Awning—Jap'd.....10%							
Clothes Line.....10%							
Hay Fork.							
Iron Wheel, 5-in.....per doz.	2 50						
Wood Wheel, 6-in....."	2 65						
Wood Wheel, 6-in., pass knot,.....	3 00						
Sash.							
Common.....Net							
Common-Sense, 2-in.....Net							
Empire Pattern, 2-in.....Net							
Ideal.....Net							
Steel.....Net							
PUMPS.							
Pitcher Spout.							
Nos. 1 2 3 4							
Each.....Nets							
Spray.							
Midget Junior.....per doz.	3 75						
New Misty....." 6 00							
Crescent....." 6 50							
Fold and Round Nose.							
Bernard's.....	New Prices						
Lodi.....	New Prices						
Paragon.....	New Prices						
Fencing.							
Black Bull.....	All Nets						
Farmers' Choice.....	All Nets						
Russell's.....	All Nets						
POINTERS.							
Common.....	Nets						
Cook's.....	40%						
Davis' Iron.....	25%						
Davis' Inclinometer.....	15%						
POKERS, STOVE.							
Wr't Steel, str't or bent per doz.	\$0 75						
Nickel Plated, coil han'l's	" 1 10</td						

SETS.		SQUARES.		TAPES, MEASURING.		WARE.	
Nail.	Square head..... per doz. \$1 25	Steel and Iron.....	Nets new list (Add, for bluing, \$3.00 per doz. net.)	Ases' Skin.....	List & 40% Lufkin's Steel..... Prices on applic'n	Glue Pots.	
	Cup point, knurled.. " 1 15	Mitre.....		Lufkin's Metallic..... Prices on applic'n	Tinned..... Add 15% to list		
Rivet.	Farmers'..... per doz. \$2 10	Try.....	Nets	Lufkin's Pocket..... Prices on applic'n	Enameled..... 30%		
	Tinners'..... 25%	Try and Bevel.....					
Saw.	Aiken's Pattern..... per doz. \$6 50	Try and Miter.....					
	Disston's Monarch.. " 7 20	Fox's..... per doz. \$6 00					
	Disston's X-Cut.... " 13 50	Winterbottom's..... 10%					
Leach's.....	80	SQUEEZERS, LEMON.					
Nash's Hand.....	3 15	Common Wood..... per doz. \$0 76					
Nash's X-Cut.....	4 20	Porcelain Lined, Wood..... 1 25					
Stillman's Lever.....	1 30	Boss, malleable iron..... " 1 20					
Stillman's X-Cut.... " 2 50		Iron frame, porc'n bowl..... " 1 90					
Whiting Pattern, No. 21 " 5 75		Iron Frame, glass bowl..... " 2 35					
Eccentric Anvil, Hand, No. 395, N. P. Morrill Pattern,..... per doz. 11 50		Little Giant, tin'd iron..... " 4 00					
SHEARPENS, SKATE.		Drum, japanned..... " 3 60					
Diamond..... per doz. \$1 60		Drum, nickel plated..... " 4 50					
Perfect..... 1 20		STAPLES.					
SHEARS.	Per Doz.	Blind.....					
Nickel Plated, Straight, 6".... \$12 90		Barbed..... per lb. 21@22c					
" " " 7".... 14 85		Butter Tub..... " 16@19c					
" " " 8".... 16 30		Fence—					
Japanned, Straight 6".... 11 00		Polished..... per 100 lbs. \$5 45					
" " " 7".... 12 40		Galvanized..... " 6 15					
" " " 8".... 13 80		Netting.					
Tinners'—See Snips.		Galvanized..... per 100 lbs. 6 50					
SHEAVES, SLIDING DOOR.		Wrought.					
Common.		Wrought Staples, Hasps and					
Inches.... 3 4 5		Staples, Hasps, Hooks and					
Per set.... \$1 40 1 75 2 40		Staples, and Hooks a n d					
Hatfield's.		Staples..... 50&10%					
Per set.... \$1 80 2 10 2 75 25		Extra heavy..... 35%					
SHELLS—See Ammunition.		STEELYARD.					
SHELLERS, CORN.		Discount 25%.					
Union..... per doz. \$6 75		STONES.					
SHIELDS.		Axe.					
Expansion Bolt Shields..... 60%		Hindostan..... per lb. New Nets					
SHOES.	60%	More Grit..... " "					
Conductor.....		Washita..... " "					
SHOT—See Ammunition.		Emery.					
SHOVELS AND SPADES.		No. 126..... per doz. New Nets					
Coal.		Oil—Mounted.					
No. 2, Woodford..... per doz. \$5 50		Arkansas Hard No. 7 per doz. New Nets					
No. 182..... " 6 00		Arkansas Soft..... " "					
Ames', new list.... Discount, 12½%		Washita No. 717.... " "					
Per doz.		Oil—Unmounted.					
Neverbreak, hollow bck, blk., Nets		Arkansas Hard..... per lb. New Nets					
National.... " " "		Arkansas Soft..... " "					
Buckeye.... " " "		Lily White..... " "					
Mohawk.... " " "		Queer Creek..... " "					
Bar Drain & Ditching		Washita..... " "					
Iwan's Perfection..... \$30 00		Scythe.					
Railroad, etc.		Black Diamond..... per gro. New Nets					
Black Diamond..... per doz. Net		Crescent..... " "					
Crescent....		Green Mountain..... " "					
Keystone....		LaMoille..... " "					
Star....		Extra Quinnebog..... " "					
Hollow Back....		Red End..... " "					
Ames', new list.... Discount, 12½%		STOPPS, BENCH.					
Snow.		No. 10 Morrill pattern, per doz. \$10 00					
Galvanized, with wood han-		No. 11 Stearns..... 8 75					
die, No. 56..... \$1 45		No. 15 Smith..... 6 50					
No. 55..... 1 55		STOPPERS, FLUE.					
Alaska Steel.		Common..... per doz. \$1 10					
D-Handle..... per doz. \$3 50		Gem, flat, No. 3..... " 1 00					
Long Handle..... " 3 00		Gem, No. 1..... " 1 10					
SINKS.		STOVE PIPE—See pipe.					
Cast Iron.		STOVE BOARDS—See Boards.					
Painted, 16x24..... Net		STOVE POLISH—See Polish.					
Enamelled, White, 16x24..... "		STRAPS.					
Wrought Steel.		Skate..... per doz. 85c & 1 20					
Painted, 16x24..... "		STRETCHERS.					
SLEDGES—See Hammers.		Bullard's..... per doz. \$3 90					
SNAPS, HARNESS.		Excelsior..... " 5 25					
Covered Spring..... Add 30%		Malleable Iron..... " 70					
Judd's Pattern..... Add 33½% to list		Perfection..... " 6 30					
SNATHS.		King..... " 4 50					
Double Ring, Bush.... per doz. \$9 75		Wire.					
Patent Loop, Bush.... " 10 00		O. S. Elwood, No. 1.... per doz. Nets					
Patent Loop, Grass.... " 8 75		O. S. Elwood, No. 2.... " "					
SNIPS, TINNERS'.		SWIVELS.					
Clover Leaf..... 40&10%		Malleable Iron..... per lb. \$0 10					
National.... 40&10%		Wrought Steel..... per gro. 4 50					
Star.... 50%		TACKS.					
SOLDER—See Metals.		Bill Posters' 6-oz. 25 lb. boxes,.....					
SPRINGS, DOOR.		per lb. 15c					
Perfect.	Nos. 2 3 4 5 6 7	Upholsters' 6-oz. 25-lb. boxes,.....					
Nos. 55c 60c 65c 75c 90c 1 00		per lb. 15c					
Reliance.	Light Medium Heavy						
Per doz. \$1 55 2 10 3 20							
Torrey's..... per doz. 1 65							
SPRINKLERS, LAWN.							
Stearns' No. 1..... per doz. \$9 75							

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ALPHABETICAL LIST

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American Sheet & Tin Plate Co.	53	Jack Corporation, A. W., Lockport, New York	Delta File Works, Philadelphia, Pa.	Mitera.
American Steel & Wire Co.	56			Friedley-Voshardt Co., Chicago, Ill.
Berger Bros. Co.	56	Ball Ties.	Allen Co., L. B., Chicago, Ill.	Motorcycles.
Bertsch & Co.	54	American Steel & Wire Co., Chicago, Ill.		Johnson's Arms & Cycle Works, Fitchburg, Mass.
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Bullard & Gormley Co.	59	Johnson's Arms & Cycle Works, Iver, Fitchburg, Mass.		Nails—Wire.
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